

SERVICE MANUAL

T890M



Computer

T890M

Service Manual

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About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the ***T890M*** series computer.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.

Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists

Appendix B, Schematic Diagrams

Preface

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 1.58A or 19V, 1.57A (**30** Watts) minimum AC/DC Adapter.

CAUTION

**TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER,
TELECOMMUNICATION LINE CORD**

Instructions for Care and Operation

The computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.
 - *Do not place it on an unstable surface.*
 - *Do not place anything heavy on the computer*
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
 - *Do not expose it to excessive heat.*
 - *Do not leave it in a place where foreign matter or moisture may affect the system.*
 - *Don't store the computer in a humid environment.*
3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
4. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted
 - *Do not turn off the power until you properly shut down all programs.*
 - *Do not turn off any peripheral devices when the computer is on.*
 - *Do not disassemble the computer by yourself.*
 - *Perform routine maintenance on your computer.*
5. **Take care when using peripheral devices.**
 - *Use only approved brands of peripherals.*
 - *Unplug the power cord before attaching peripheral devices.*

Preface

Power Safety

The computer has specific power requirements:

- *Only use a power adapter approved for use with this computer.*
- *Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.*
- *The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.*
- *When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.*
- *Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.*
- *Before cleaning the computer, make sure it is disconnected from any external power supplies.*



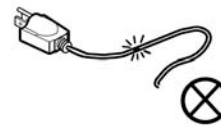
Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

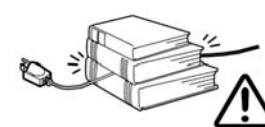
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the computer's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.




Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Battery Level

Click the battery icon  in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

Preface

Related Documents

You may also need to consult the following manual for additional information:

User's Manual on CD

This describes the computer's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the computer.

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **T890M** series computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows XP*, *Windows Vista*, etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The **T890M** series is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “⚠” symbol.

The balance of this chapter reviews the computer's technical specifications and features.

System Specifications

Processor Options Intel® Atom Processor: 512K On-die L2 Cache, 533MHz FSB, FC-BGA8 Package Z520 (1.33GHz), Z530 (1.60GHz), Z540 (1.86GHz)	BIOS One 8Mb SPI Flash ROM Phoenix™ BIOS	Card Reader/ExpressCard Intel® US15W Integrated 5-in-1 Card Reader (SD/ Mini SD/ SDIO/ MMC/ RS MMC) Note: Mini SD/ SDIO/ RS MMC Cards require a PC adapter One ExpressCard 34 Slot
Core Logic Intel® US15W Chipset	Drop Protection G-Sensor Software HDD Drop Protection from 40cm when system is powered on Shock Mounted HDD Drop protection from 120cm when system is powered off	Communication Built-In 10M/100Mb Base-TX Ethernet LAN Bluetooth 2.1 + EDR (Enhanced Data Rate) Module 802.11b/g Wireless LAN Mini-Card Module with USB interface GPS Module (Factory Option) HF RFID Reader (Factory Option)
LCD Options 8.9" WSVGA (1024 * 600) TFT LED Backlight LCD with Touch Panel (Stylus Pen & Finger Sensitivity) - Factory Option 8.9" WSVGA (1024 * 600) TFT LED Backlight LCD with Touch Panel (Stylus Pen & Finger Sensitivity) - (Sunlight Readable with Brightness at least 350 nits) - Factory Option	Storage Shock Mounted Hard Disk Drive SATA 2.5" HDD or SATA Solid State Drive (Factory option) Single Level Cell	Security Security (Kensington® Type) Lock Slot Fingerprint ID Reader Module BIOS Password
Memory One 200 Pin SO-DIMM Socket Supporting DDR2 (DDR2) 553MHz Memory Expandable up to 2GB	Audio Intel® High Definition Audio Built-In Microphone 2 * Built-In Speakers (1.5W)	Power Management Supports Wake on LAN
Video Adapter Intel® US15W Integrated Video (Intel® Graphics Media Accelerator 500)	Button Keys 5 Directional Key Buttons (Camera, Zoom, Page Up, Page Down & Menu)	Power Full Range AC/DC Adapter AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 1.58A or 19V, 1.57A (30 Watts) Li-Polymer 6600mAH Battery Pack Energy Star 5.0 Hot Swap Design Battery Gauge Indicator Battery Life Around 10 Hours
Video Camera 2M Pixel Video Camera Module with USB Interface	Interface Two USB 2.0 Ports One External Monitor Port One Headphone-Out Jack One Microphone-In Jack One RJ-45 LAN Jack One Docking Connector One DC-In Jack	

Operating System	Factory Options
Windows® Vista Home Basic 32bit (with Service Pack 2) Windows® XP (with Service Pack 3)	GPS Module Bluetooth 2.1 + EDR (Enhanced Data Rate) Module HF RFID Reader 8.9" WSVGA (1024 * 600) TFT LED Backlight LCD with Touch Panel (Stylus Pen & Finger Sensitivity) 8.9" WSVGA (1024 * 600) TFT LED Backlight LCD with Touch Panel (Stylus Pen & Finger Sensitivity) - (Sunlight Readable with Brightness at least 350 nits)
Environmental Spec	
Temperature Operating: 5°C - 35°C Non-Operating: -20°C - 60°C Relative Humidity Operating: 20% - 80% Non-Operating: 10% - 90%	
Dimensions & Weight	
239mm (w) * 190mm (d) * 30mm (h) Around 1.5 kg With Battery	
Indicators	
Power/ Suspend/ Battery/ HDD Battery Gauge	
Optional	
USB to RS232 Cable Docking Station (Power Charge and USB * 4) Input 12V-24Vdc, Output 19V Car Adapter, 60W Shoulder Strap/Carrying Handle/Hand Holder Charger Box One External 12.7 mm Combo/Super Multi USB Optical Device Drive	

Introduction

Figure 1
LCD Panel View

1. Built-In Microphone
2. LED Indicators
3. LCD Touch Panel Screen
4. Speakers
5. Fingerprint Reader
6. 5 Function Buttons
7. Protective Surround

External Locator - LCD Panel View



External Locator - Top & Right side Views



Figure 2
Front Views

1. Strap Holders (for Carrying Strap)
2. Power Button
3. RFID (Radio Frequency Identification) Reader (**Factory Option**)
4. RJ-45 LAN Jack
5. 1 * USB 2.0 Ports



Figure 3
Right Side Views

1. Headphone-Out Jack
2. External Monitor Port
3. Card Reader Cover
4. ExpressCard 34 Slot (see below)
5. 5-in-1 Card Reader

Introduction

External Locator - Left Side & Bottom View

Figure 4
Left Side View

1. Security Lock Slot
2. Stylus Pen & Holder
3. DC-In Jack
4. 1 * USB 2.0 Port



Figure 5
Bottom View



External Locator - Rear View



Figure 6
Rear View

1. Built-In PC Camera
2. GPS Active Aerial Socket (for optional Active Aerial)
3. Protective Surround
4. Stylus Pen & Holder
5. Battery Gauge
6. Battery



Overheating

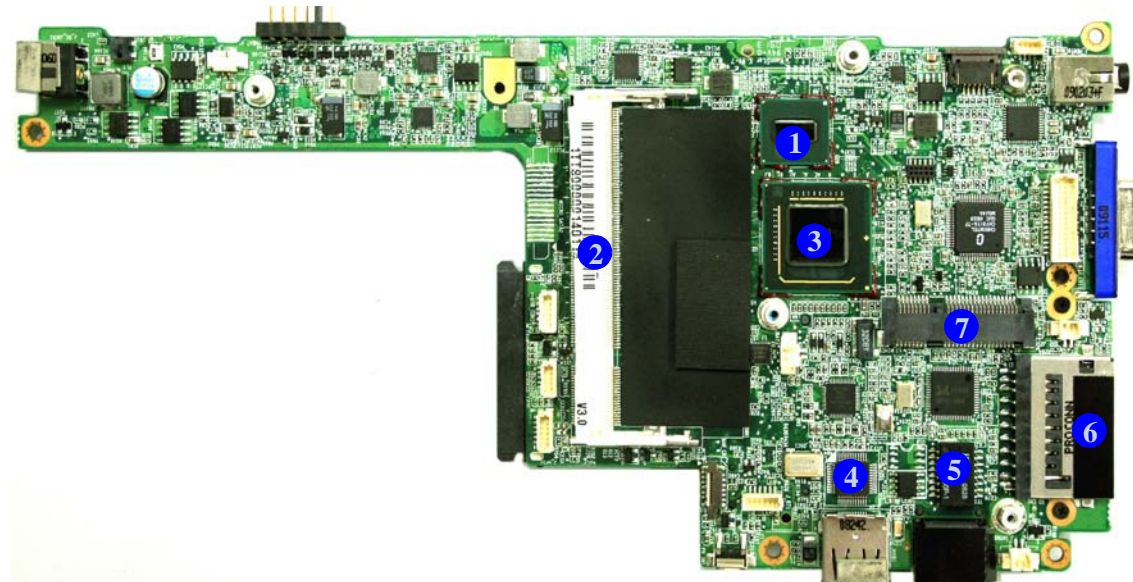
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. Intel Atom CPU
2. Memory Slots
DDR2 SO-DIMM
3. System Controller
Hub
4. Super I/O
5. Transformer
6. Card Reader
Socket
7. Mini-Card
Connector
(WLAN Module)

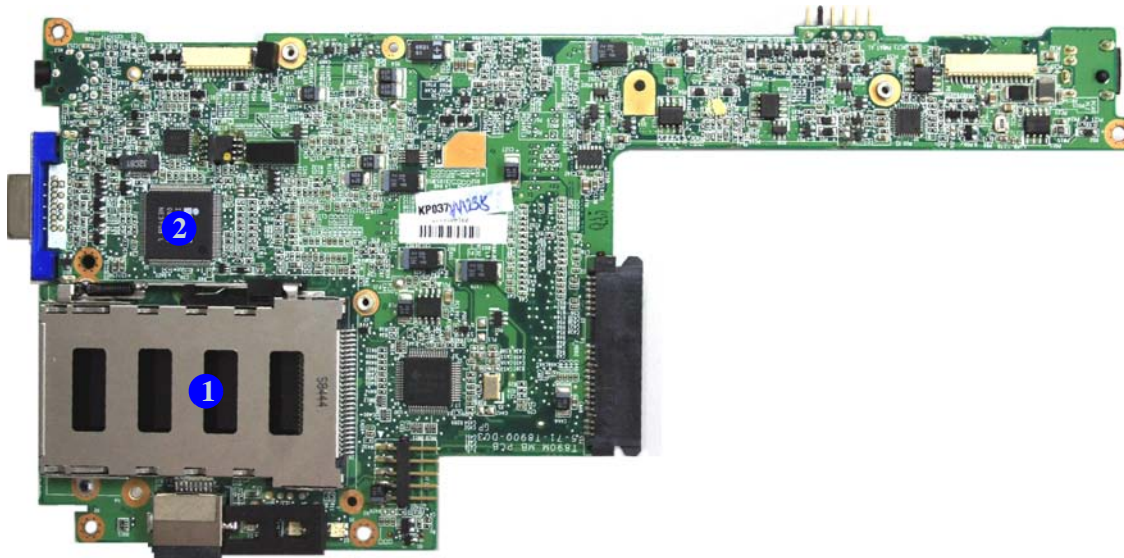
Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

Figure 8
**Mainboard Bottom
Key Parts**

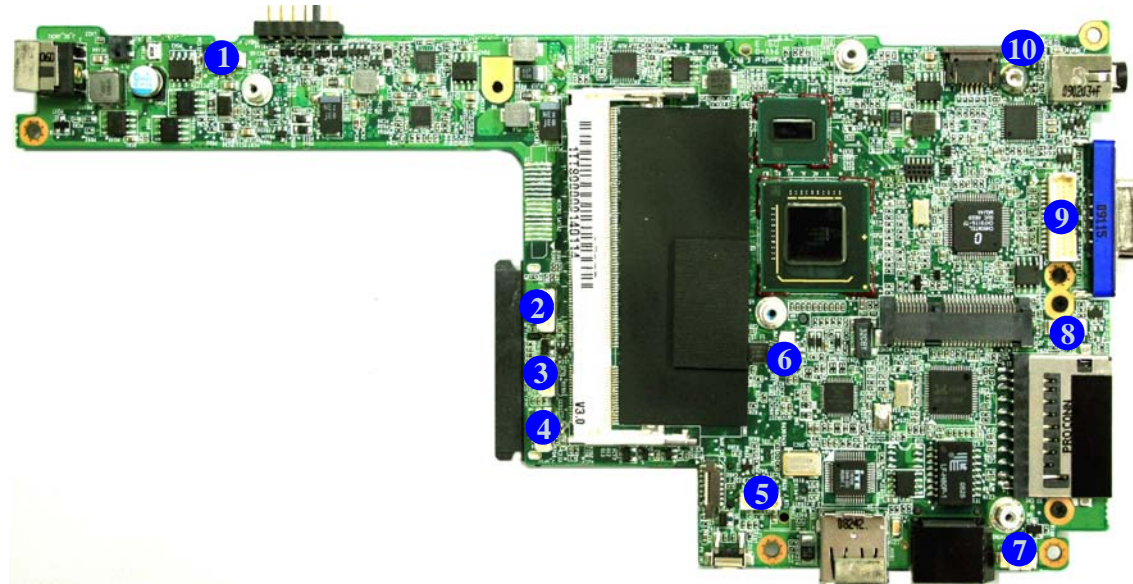
1. ExpressCard Connector
2. KBC ITE IT8513E



Introduction

Figure 9
**Mainboard Top
Connectors**

1. Second Bridge Battery Cable Connector
2. USB Cable Connector
3. CCD Cable Connector
4. GPS Cable Connector
5. Bluetooth Cable Connector
6. CMOS Battery Cable Connector
7. Microphone Cable Connector
8. BarCode Reader Cable Connector
9. LVDS Cable Connector
10. Speaker Cable Connector



Mainboard Overview - Bottom (Connectors)

Figure 10
**Mainboard Bottom
Connectors**

1. HDD Connector
2. Function Button
Cable Connector
3. Docking Cable
Connector




Chapter 2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the **T890M** series computer's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, optical device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a  lists the relevant parts you will have after the disassembly process is complete. **Note:** The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a  will also provide any possible helpful information. A box with a  contains warnings.

An example of these types of boxes are shown in the sidebar.


Information
Warning

Disassembly

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the computer:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it.** Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it.** Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference.** Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry.** This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power.** Avoid accidental shocks, discharges or explosions.
 - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
 - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge.** ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion.** As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean.** Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components.** When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.



Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

- 1. Remove the battery *page 2 - 5*

To remove the HDD:

- 1. Remove the battery *page 2 - 5*
- 2. Remove the HDD *page 2 - 6*

To remove the System Memory:

- 1. Remove the battery *page 2 - 5*
- 2. Remove the HDD *page 2 - 6*
- 3. Remove the system memory *page 2 - 8*

To remove the Wireless LAN Module:

- 1. Remove the battery *page 2 - 5*
- 2. Remove the HDD *page 2 - 6*
- 3. Remove the wireless LAN *page 2 - 9*

To remove the Bluetooth Module:

- 1. Remove the battery *page 2 - 5*
- 2. Remove the HDD *page 2 - 6*
- 3. Remove the Bluetooth *page 2 - 10*

Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Loosen the screws **1** - **4**.
3. Remove the battery bay cover **5**.
4. Lift the battery **7** in the direction of the arrow **6** out of the computer.



Figure 1
Battery Removal

- a. Loosen the screws.
- b. Remove the battery bay cover.
- c. Lift the battery out of the bay as indicated.



5. Battery Bay Cover
7. Battery

Disassembly

Figure 2
**HDD Assembly
Removal**

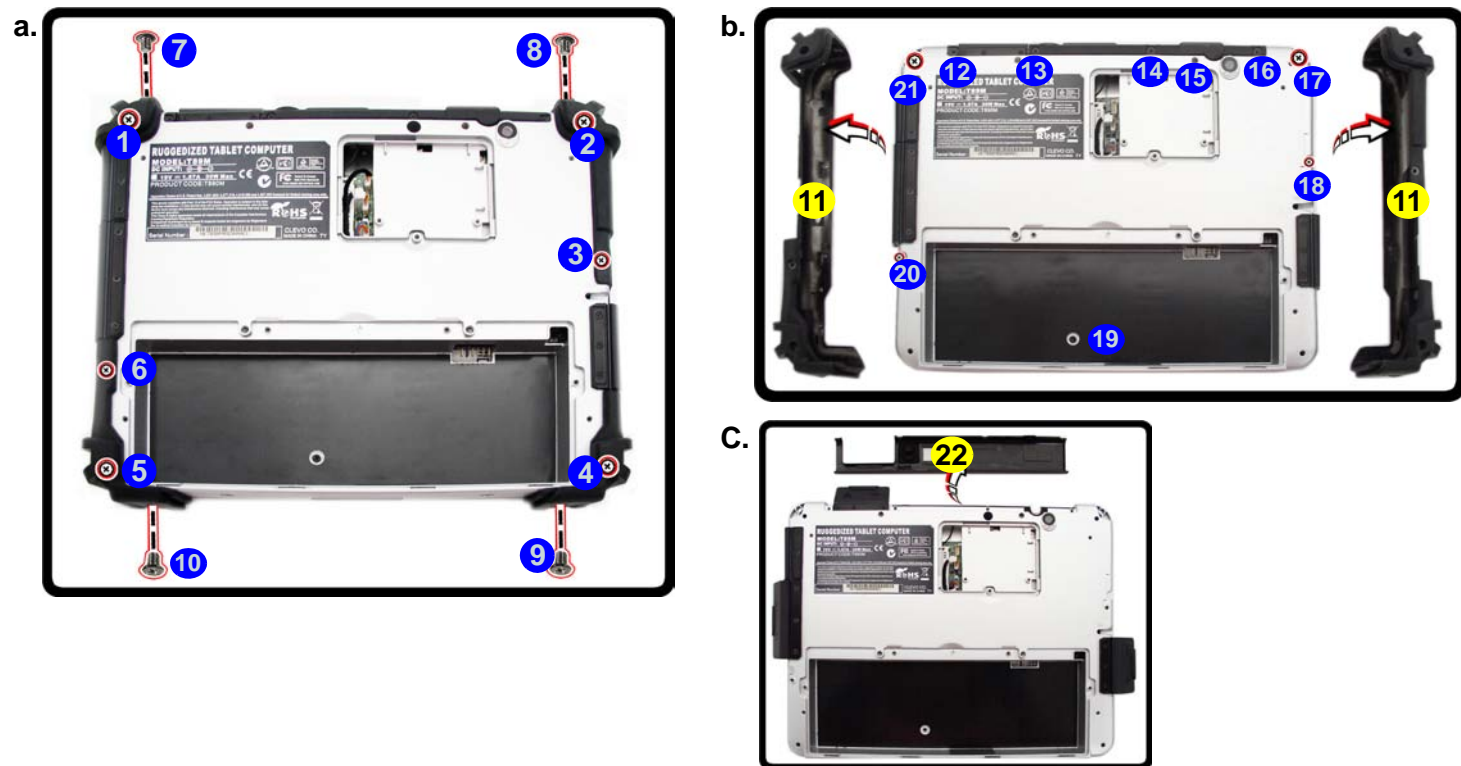
- Remove the screw.
- Remove the rubber side case and screws.
- Remove the rubber top case.

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

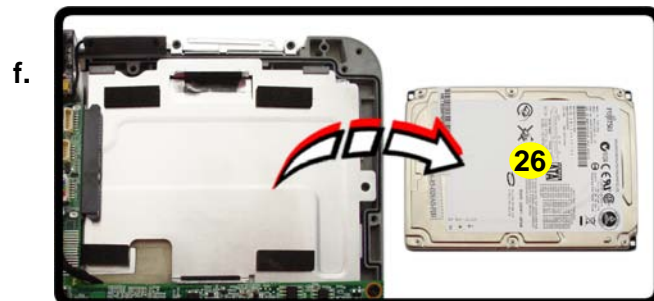
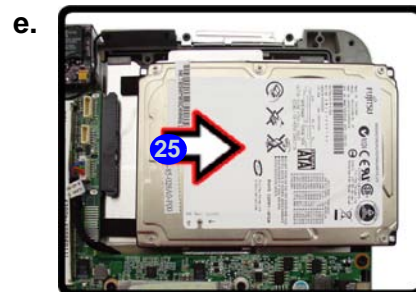
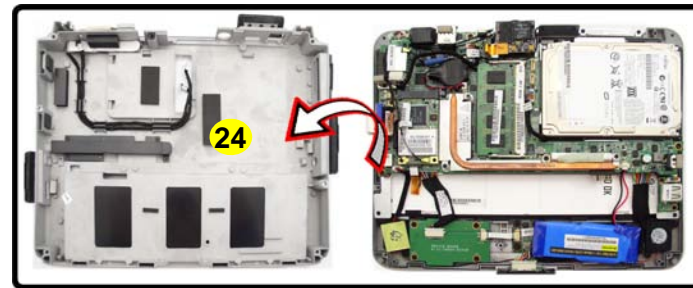
- Turn off the computer, remove the battery ([page 2 - 5](#)).
- Remove screws **1** - **10** and then remove the rubber side case **11**.
- Remove screws **12** - **21** and then remove the rubber top case **22**.



11. Rubber Side Case
22. Rubber Top Case

- 20 Screws

4. Carefully lift the bottom case **24** as indicated by the arrow **23**.
5. Slide the hard disk assembly in the direction of the arrow **25**.
6. Lift the hard disk **26** off the computer.



HDD System Warning

New HDD's are blank. Before you begin make sure:

You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.



24. Bottom Case
26. HDD

7. Reverse the process to install any new hard disk (pay careful attention to the disk's orientation in the case).

Figure 3
**HDD Assembly
Removal (cont'd.)**

- d. Lift the bottom case off the computer.
- e. Slide the HDD as directed.
- f. Lift the HDD out of the computer.

Disassembly

Figure 4
RAM Module Removal

- Pull the release latch(es).
- Remove the module.



Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.



3. RAM Module

Removing the System Memory (RAM)

The computer has one memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting **DDR2** 533MHz. The main memory can be expanded up to 2GB. The SO-DIMM modules supported are 1024MB, and 2048MB and **DDRII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

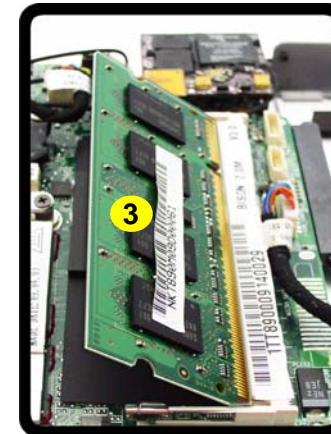
Memory Upgrade Process

- Turn **off** the computer, remove the battery ([page 2 - 5](#)) and harddisk ([page 2 - 6](#)).
- Gently pull the two release latches (1 & 2) on the sides of the memory socket in the direction indicated by the arrows ([Figure 4a](#)).

a.



b.

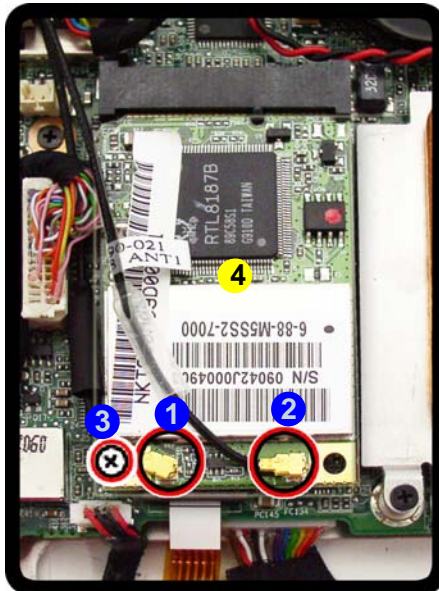


- The RAM module 3 will pop-up ([Figure 4b](#)), and you can then remove it.
- Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
- The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE** the module; it should fit without much pressure.
- Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
- Secure the metal casing, replace the battery and restart the computer to allow the system to detect the hard disk drive.
- Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Removing the Wireless LAN Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and harddisk ([page 2 - 6](#)).
2. Carefully disconnect cables **1** - **2**, then remove screw **3** from the module socket.
3. The Wireless LAN module **4** will pop-up.
4. Lift the Wireless LAN module up and off the computer.

a.



b.

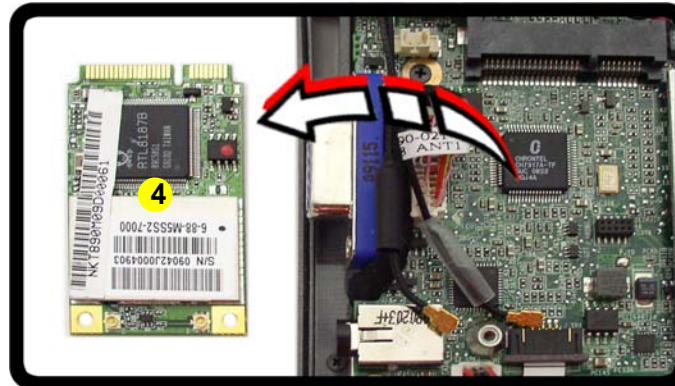


Figure 5
**Wireless LAN
Module Removal**

- a. Disconnect the cable and remove the screw.
- b. The WLAN module will pop up to allow you to remove it.

Note: Make sure you reconnect the antenna cable to “1” + “2” socket ([Figure a](#)).



4. WLAN Module

- 1 Screw

Disassembly

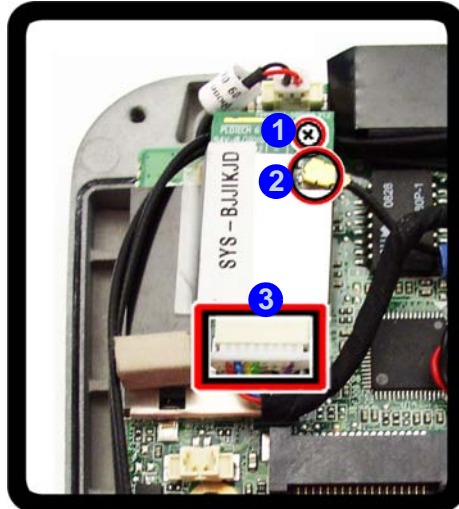
Figure 6
Bluetooth Module Removal

- a. Remove the screw and disconnect the cable and connector.
- b. Lift the Bluetooth module up off the computer.

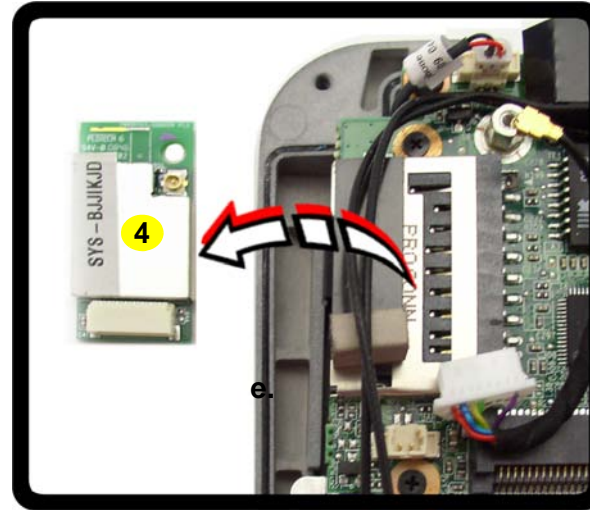
Removing the Bluetooth Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and harddisk ([page 2 - 6](#)).
2. Remove the screw **1** and disconnect the cable **2** & connector **3** from the module.
3. Lift the Bluetooth module **4** ([Figure 6e](#)) up and off the computer.

a.



b.



4. Bluetooth Module

- 1 Screw

Appendix A: Part Lists

This appendix breaks down the *T890M* series computer's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table A- 1
**Part List Illustration
Location**

Parts	
MB with RFID	<i>page A - 3</i>
Back Cover	<i>page A - 4</i>
LCD with Barcode Reader	<i>page A - 5</i>
LCD without Barcode Reader	<i>page A - 6</i>

MB with RFID

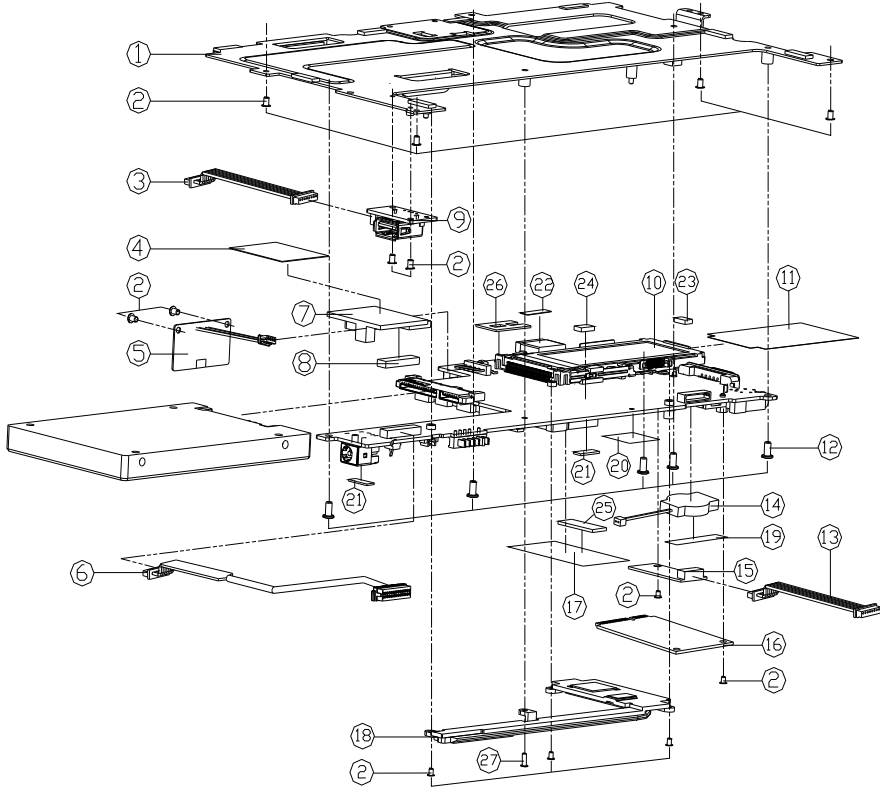


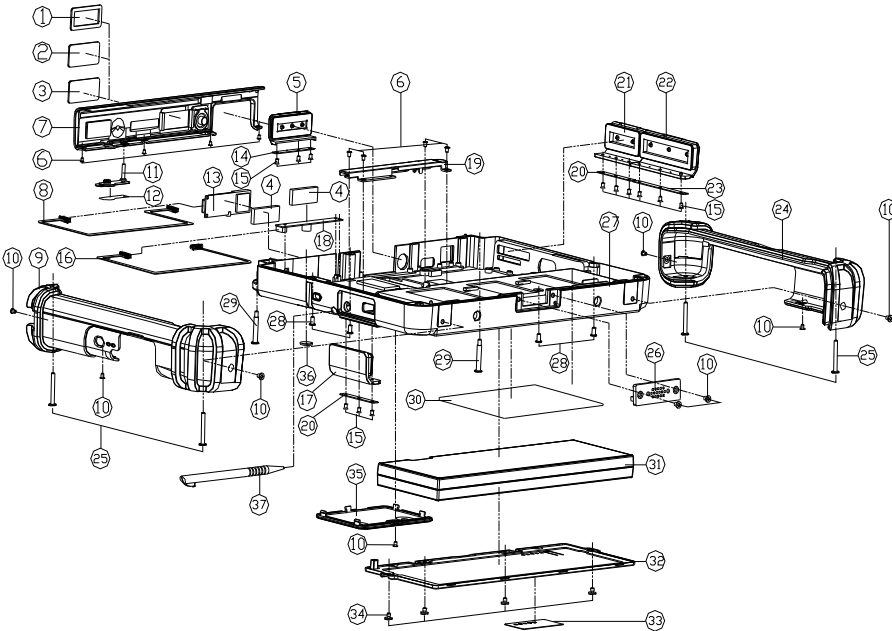
Figure A - 1
MB with RFID

ITEM	PART NAME	PART NO	REMARK
1	LCD SHIELDING MODULE T890M	6-33-T8901-104	
2	SCREW M3X L10 B/LZ ICT NY 405 T43D	6-35-B6120-3RE	
3	WIRE CABLE USB TO M/B T890M	6-43-T8900-042	
4	RFID MYLAR PET T890M	6-40-T8903-010	FOR RFID OPTION
5	ANTENNA RFID ISM 13.56MHZ T890M	6-23-T8900-052	FOR RFID OPTION
6	WIRE CABLE USB TO M/B T890M	6-43-T8900-011	
7	USB BOARD V3.0 T890M	6-88-T8900-8403	FOR RFID OPTION
8	MAIN BOARD V3.0 T890M	6-47-T8905-020	FOR RFID OPTION
9	MAIN BOARD V3.0A T890M	6-77-T8903-D03	
10	MAIN BOARD V3.0A T890M	6-77-T8900-D03A	
11	NEW CARD MYLAR PET T890M	6-40-T8905-012	
12	SCREW M2.5X5L ICT BK/Z ICT NY	6-35-B6125-SRA	
13	WIRE CABLE USB TO M/B T890M	6-43-T8900-010	
14	MYLAR PET T890M	6-23-22015-P2C	
15	MYLAR PET T890M	6-88-M7315-3900	
16	MYLAR PET T890M	6-88-M5552-7000	
17	MYLAR PET T890M	6-40-M5205-010-1	
18	CPU HEATSINK MODULE T890M	6-31-T890N-101-1	
19	TAPE MYLAR (A) MYLAR M55J	6-40-M55J2-010	
20	LAN MYLAR PET T890M	6-40-T8905-022	
21	GASKET (3M4545) FOR USB T890M	6-47-00190-1A9	
22	GASKET (3M4545) FOR BATTERY T890M	6-47-00190-135	
23	MYLAR PET T890M	6-47-T8901-0W0	
24	MYLAR PET T890M	6-47-T8901-0D1	
25	DDR SPONGE B POREN T890M	6-47-T890A-031	
26	LED M/B SPONGE POREN T890M	6-47-T8905-030	
27	SCREW M3X L10 B/LZ ICT NY	6-35-B6120-SR0	

A.Part Lists

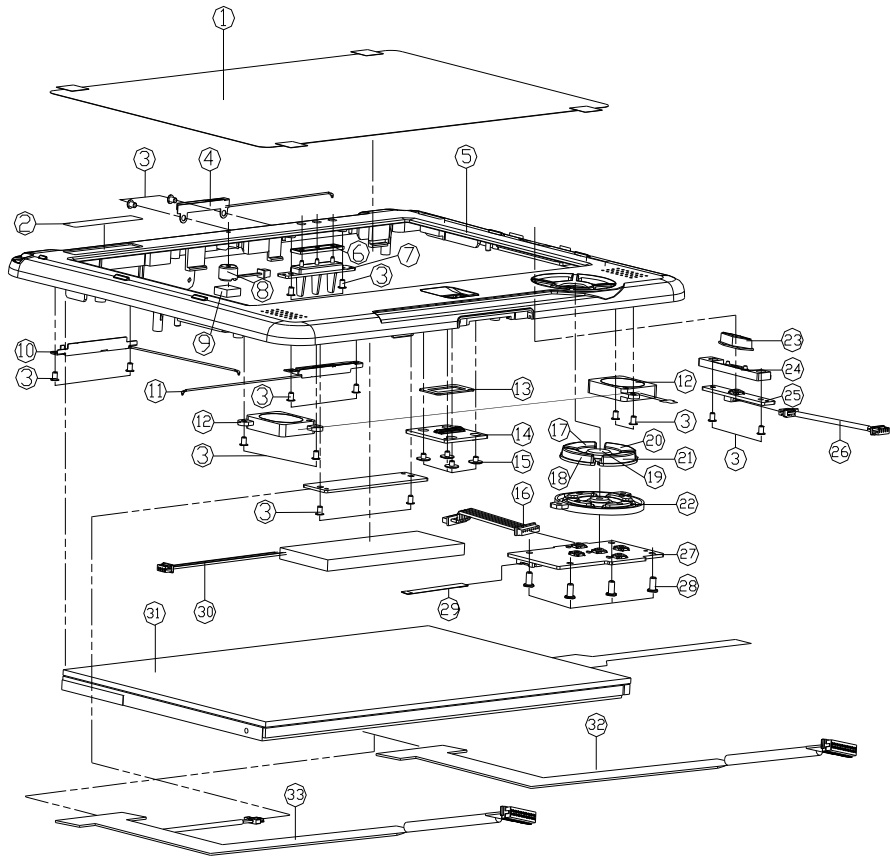
Back Cover

Figure A - 2
Back Cover



ITEM	PART NAME	PART NO	REMARK
1	BARCODE	PMMA T890M	6-42-1890B-020 FOR BRACKET
2	W/O BRACKET	W/O T890M	6-42-1890L-070 FOR W/O BRACKET
3	W/O ID	PMMA T890M	6-42-1890J-020 FOR W/O ID
4	CCD RUBBER SILICONE	T890M	6-47-1890I-030
5	LAN COVER MODULE	T890M	6-42-1890I-402
6	DOCKING BRACKET KIT W/ W/O H/D		6-35-86120-08C
7	BACK COVER MODULE	T890M	6-42-1890I-201
8	W/O GATE OPS TO W/O W/O W/O		6-43-1890C-010
9	PROTECT RUBBER L SILICONE RUBBER		6-47-1890I-063
10	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
11	GPS RUBBER SILICONE	T890M	6-47-1890C-012
12	GPS W/LAY PET	T890M	6-40-1890C-010 FOR W/O GPS
13	DOCKING BRACKET KIT W/O KIT W/O		6-35-86120-08C
14	LAN BRACKET SUS	T890M	6-33-1890I-011
15	DOCKING BRACKET KIT W/O KIT W/O		6-35-86120-08C
16	W/O GATE OPS TO W/O W/O W/O		6-43-1890C-011
17	DOCKING BRACKET KIT W/O KIT W/O		6-42-1890I-102
18	DOCKING BRACKET KIT W/O KIT W/O		6-35-86120-08C
19	PEN COVER MODULE	T890M	6-42-1890I-101
20	NEW CARD BRACKET SUS	T890M	6-33-1890A-011
21	NEW CARD BRACKET SUS	T890M	6-42-1890I-302
22	DOCKING BRACKET KIT W/O KIT W/O		6-42-1890I-102
23	DOCKING BRACKET KIT W/O KIT W/O		6-33-1890I-011
24	PROTECT RUBBER L SILICONE RUBBER		6-47-1890I-063
25	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
26	DOCKING BRACKET KIT W/O KIT W/O		6-77-1890C-013
27	DOCKING BRACKET KIT W/O KIT W/O		6-77-1890C-003
28	DOCKING BRACKET KIT W/O KIT W/O		6-39-1890I-022
29	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
30	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
31	PRODUCT LABEL	T890M	6-45-1890C-024
32	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
33	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
34	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
35	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
36	DOCKING BRACKET KIT W/O KIT W/O		6-35-86125-08C
37	STYLUS PEN FROM T890M		6-42-1890I-012

LCD with Barcode Reader

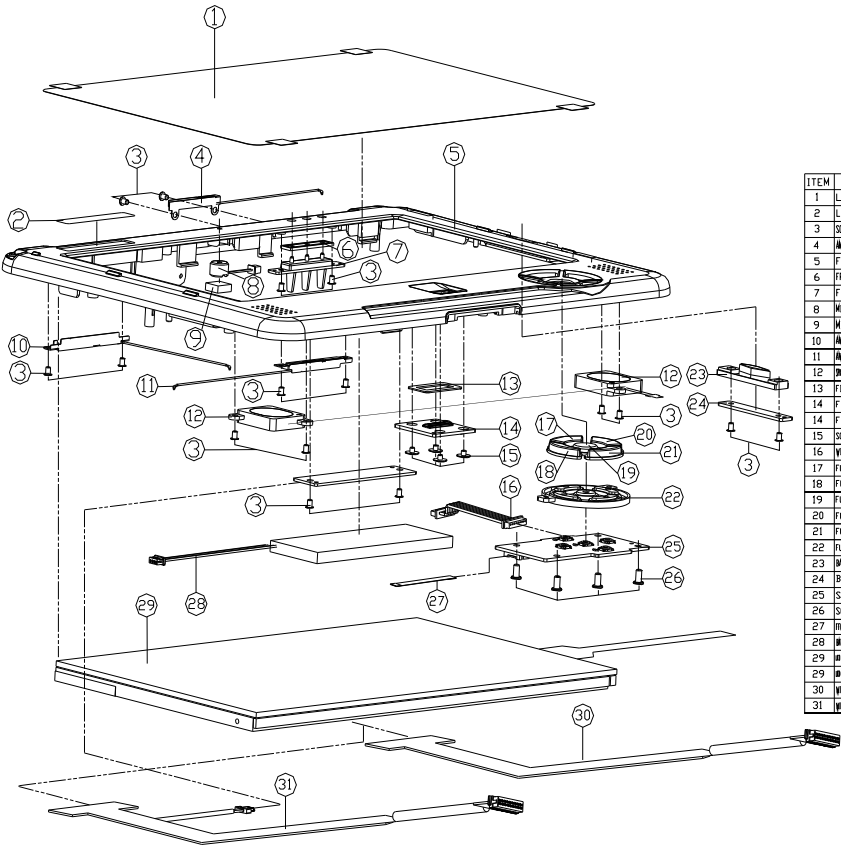


ITEM	PART	NAME	PART	NO	REMARK
1	LCD	FRONT PET T890	6-40-T8901-040		
2	LEDO	(RIGID-NOTE) FOR T890	6-45-T8901-010		
3	SCREW	M2.5X5.5 KT BK/Z ICT NY 0035 1-63	6-35-B6120-3RE		
4	ANTENNA	BLUETOOTH 2.4G PPA BT 200	6-23-T8901-041		FOR W/D BT
5	FRONT	COVER MODULE T890	6-39-T8901-012		
6	FRONT	LENS SEAL SILICONE RUBBER T890	6-47-T8901-070		
7	FRONT	LED SEAL MODULE T890	6-42-T8901-501		
8	MIC	6MMX35 10V2V 22K W/CABLE	6-23-ET8901-012		
9	MICROPHONE	SPONGE POREN T890	6-47-T8901-040		
10	ANTENNA	WLAN 2.4G/5G PPA W/L 200	6-23-T8901-022		
11	ANTENNA	WLAN 2.4G/5G PPA W/L 200	6-23-T8901-032		
12	FRONT	COVER SEAL SILICONE RUBBER T890	6-23-5T8901-011		
13	FINGERPR	RINGER SEAL SILICONE T890	6-47-T8901-011		
14	FINGERPRINT	BOARD V3.0 T890	6-77-T8901-D03		
15	SCREW	M2.5X5.5 KT BK/Z ICT NY 0035 1-63	6-35-B6120-3RC		
16	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-032		
17	FUNCTION	KEY UPPER PC+ABS T890	6-42-T8901-012		
18	FUNCTION	KEY LEFT PC+ABS T890	6-42-T8901-052		
19	FUNCTION	KEY CENTER PC+ABS T890	6-42-T8901-031		
20	FUNCTION	KEY RIGHT PC+ABS T890	6-42-T8901-022		
21	FUNCTION	KEY BELOW PC+ABS T890	6-42-T8901-042		
22	FUNCTION	KEY RUBBER SILICONE RUBBER T890	6-47-T8901-0K1		
23	BARCODE	BUTTON SEAL SILICONE RUBBER T890	6-42-T8901-051		FOR BARCODE COPY (10)
24	BARCODE	BUTTON SEAL SILICONE RUBBER T890	6-47-T8901-080		FOR BARCODE COPY (10)
25	BARCODE	SW BOARD V3.0 T890	6-77-T8901-D03		FOR BARCODE COPY (10)
26	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-050		FOR BARCODE COPY (10)
27	SWITCH	BOARD V3.0 T890	6-77-T8901-D03		
28	SCREW	M2.5X5.5 KT BK/Z ICT NY 0035 1-63	6-35-B6120-5RA		
29	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-011		
30	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-021		
31	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-022		
32	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-012		
33	WIRE	CABLE SW100V TO W3 2PIN T890	6-43-T8901-022		

Figure A - 3
LCD with Barcode Reader

LCD without Barcode Reader

Figure A - 4
LCD without
Barcode Reader



ITEM	PART NAME	PART NO	REMARK
1	LCD MODULE PET T890	6-40-T8901-040	
2	LOAD GRIP-NOTED FOR T890M	6-45-T8901-010	
3	SCREW NIXL KI BUZZ ICT NY 0025 1403	6-35-B6120-3RE	
4	ACTUATOR BUTTON 24X24 PIA NY 0001	6-23-T7890-041	
5	FRONT COVER MODULE T890M	6-39-T8901-012	
6	FRONT LENS SEAL SILICONE T890M	6-47-T8901-070	
7	FRONT LENS MODULE T890M	6-42-T8901-501	
8	MIC 040X25 01V-2V 20K W/CABLE	6-23-ET890-012	
9	MICROPHONE SPONGE P800M	6-47-T8901-0A0	
10	ACTUATOR 24X25 PIA NY 0001	6-23-T7890-022	
11	ACTUATOR 24X25 PIA NY 0001	6-23-T7890-032	
12	FRONT COVER SEAL SILICONE T890M	6-23-T7890-011	
13	FINGERPRINT SEAL SILICONE T890M	6-47-T8901-011	
14	FINGERPRINT BOARD V30 T890M	6-77-T8901-DO3	
15	FINGERPRINT BOARD V30A T890M	6-77-T8901-DO3A	
16	SCREW NIXL KI BUZZ ICT NY 0001	6-35-B6120-2RC	
17	WIRE CABLE SYSTEM TO WIR 0001	6-43-T8901-032	
18	FUNCTION KEY UPPER PC-ABS T890M	6-42-T8901-012	
19	FUNCTION KEY LEFT PC-ABS T890M	6-42-T8901-052	
20	FUNCTION KEY CENTER PC-ABS T890M	6-42-T8901-031	
21	FUNCTION KEY RIGHT PC-ABS T890M	6-42-T8901-022	
22	FUNCTION KEY BELOW PC-ABS T890M	6-42-T8901-042	
23	FUNCTION KEY RUBBER SILICONE T890M	6-47-T8901-001	
24	BARCODE HOLDER FR4 T890M	6-40-T8901-021	
25	SWITCH BOARD V30 T890M	6-77-T8901-DO3	
26	SCREW M2.5X0.5 KI BUZZ ICT NY-0001	6-35-B6125-5RA	
27	WIRE CABLE SYSTEM TO WIR 0001	6-43-M57RF-011	
28	WIRE CABLE SYSTEM TO WIR 0001	6-50-T8901-4201	
29	WIRE CABLE SYSTEM TO WIR 0001	6-50-T8901-022	
30	WIRE CABLE SYSTEM TO WIR 0001	6-43-T8901-012	
31	WIRE CABLE SYSTEM TO WIR 0001	6-43-T8901-022	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **T890M** computer's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>CH7317 SDVO to CRT - Page B - 13</i>	<i>KBC-ITE IT8513E & BIOS - Page B - 24</i>
<i>Clock Generator - Page B - 3</i>	<i>LVDS Conn, LCD Power, CRT - Page B - 14</i>	<i>VDD5, VDD3 - Page B - 25</i>
<i>Silverthorne, Thermal IC 1/2 - Page B - 4</i>	<i>SDIO, Mini Card, B/T, CCDI - Page B - 15</i>	<i>System VS Power - Page B - 26</i>
<i>Silverthorne 2/2 - Page B - 5</i>	<i>New Card Socket - Page B - 16</i>	<i>VCCNB, 1.5V, 1.05VS, M_BTN - Page B - 27</i>
<i>Poulsbo 1/6 Host - Page B - 6</i>	<i>JMH 330 SATA - Page B - 17</i>	<i>1.8V, 0.9VS - Page B - 28</i>
<i>Poulsbo 2/6 VGA, LVDS, RTC - Page B - 7</i>	<i>PCI-E LAN RTL8102E - Page B - 18</i>	<i>VCORE - Page B - 29</i>
<i>Poulsbo 3/6 USB, PATA/IDE - Page B - 8</i>	<i>Audio Codec ALC269 QFN - Page B - 19</i>	<i>AC-In, Charger - Page B - 30</i>
<i>Poulsbo 4/6 DDR2 - Page B - 9</i>	<i>Touch Panel Control - Page B - 20</i>	<i>Fingerprint Board - Page B - 31</i>
<i>Poulsbo 5/6 Power - Page B - 10</i>	<i>USB2.0, GSensor, GPS, RFID - Page B - 21</i>	<i>USB Board - Page B - 32</i>
<i>Poulsbo 6/6 VSS - Page B - 11</i>	<i>TO SW, Barcode Conn - Page B - 22</i>	
<i>DDR2 SO-DIMM - Page B - 12</i>	<i>Hotkey Board - Page B - 23</i>	

Table B - 1
**Schematic
Diagrams**

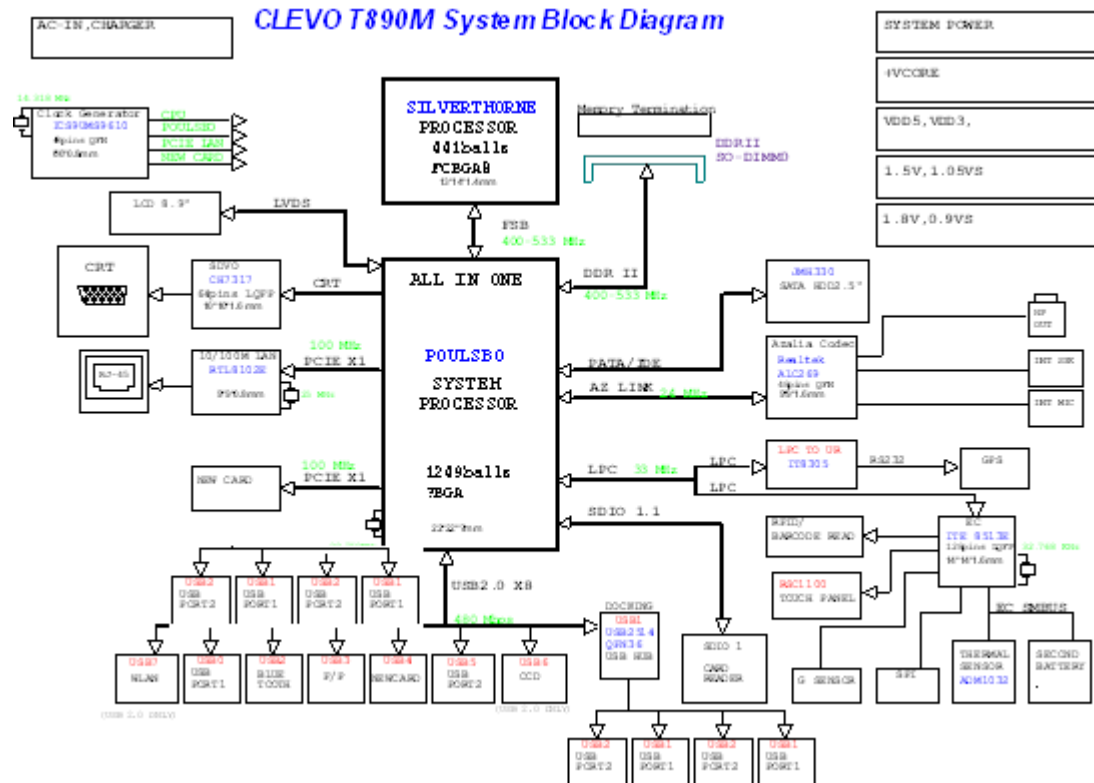


Version Note

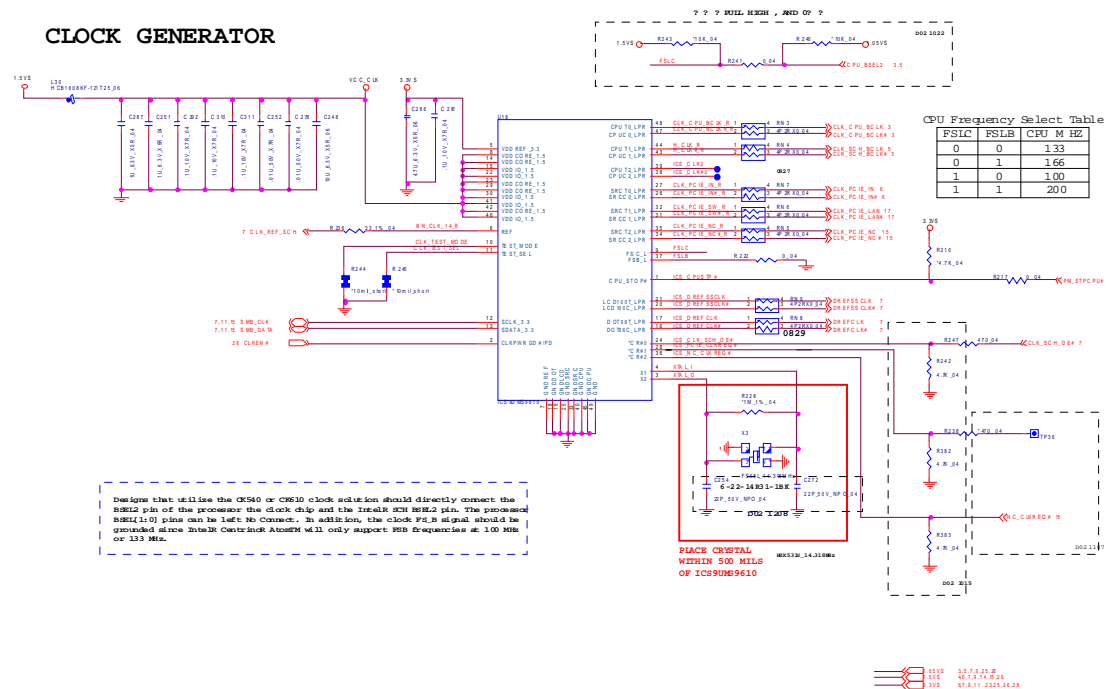
The schematic diagrams in this chapter are based upon version 6-7P-T8903-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 31
System Block
Diagram



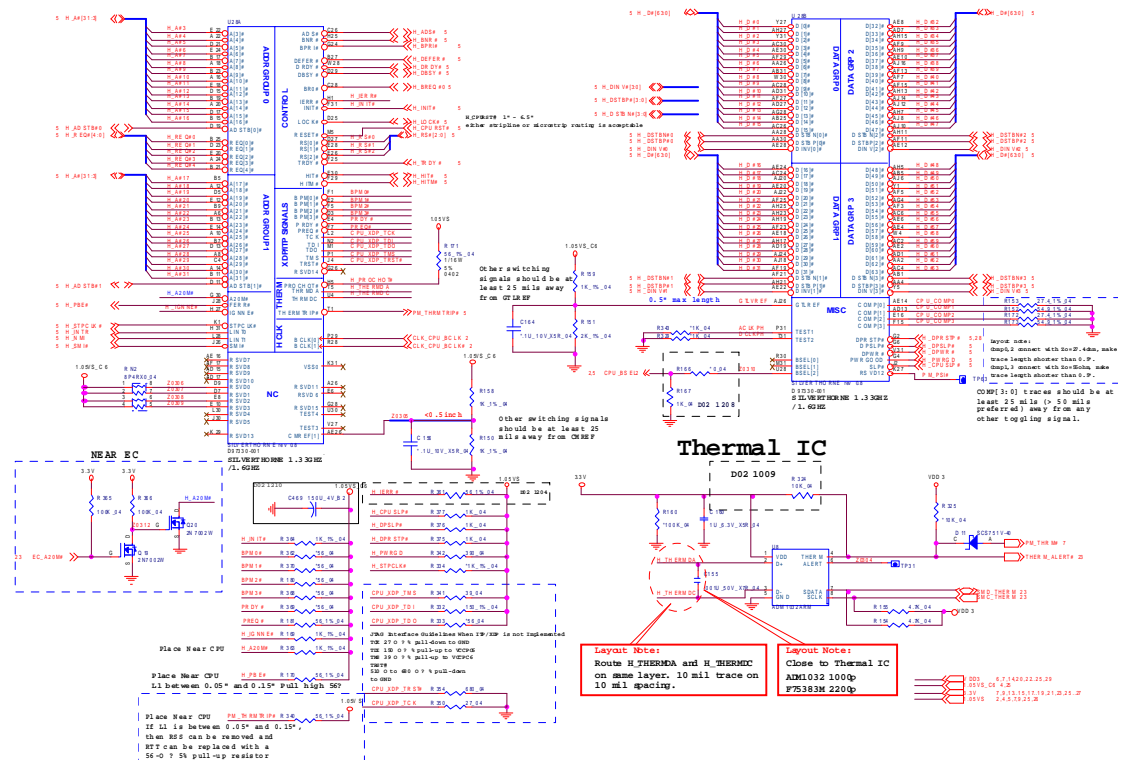
Sheet 2 of 31
Clock Generator



Schematic Diagrams

Silverthorne, Thermal IC 1/2

Sheet 3 of 31
Silverthorne,
Thermal IC
1/2



Silverthorne 2/2 B - 5

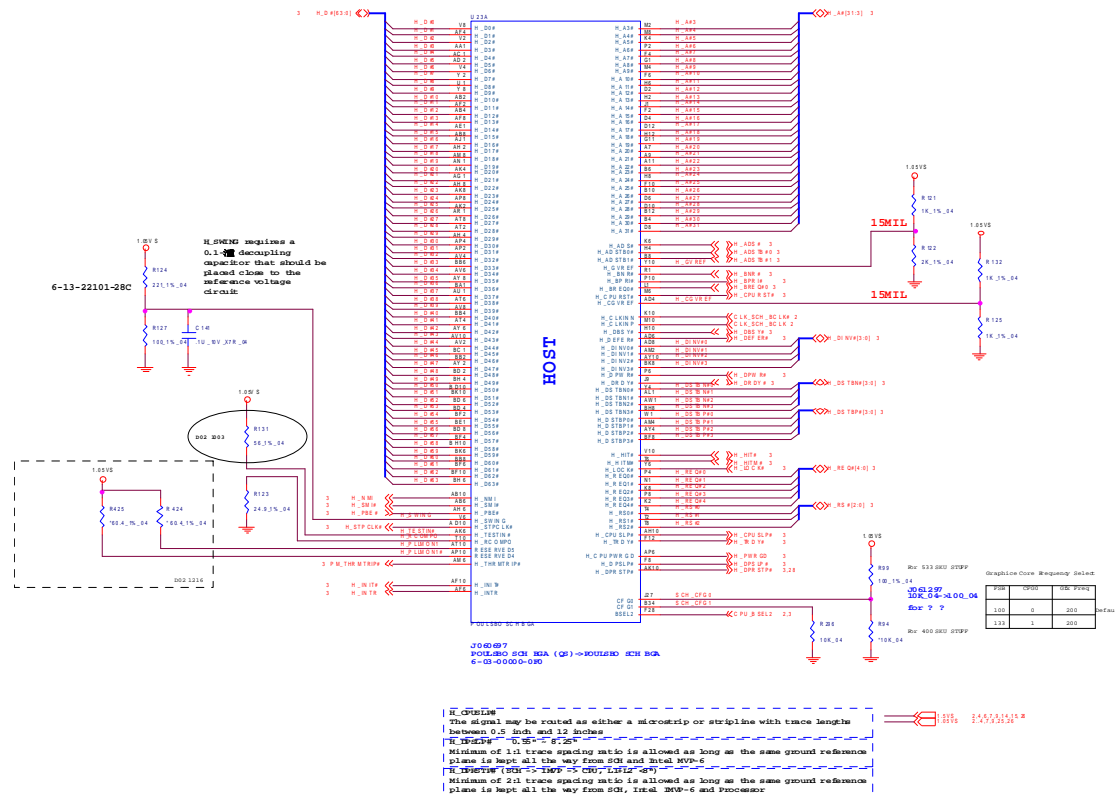
B. Schematic Diagrams

VES/NCTF pins on CIU can be left No Connect as they are corner balls

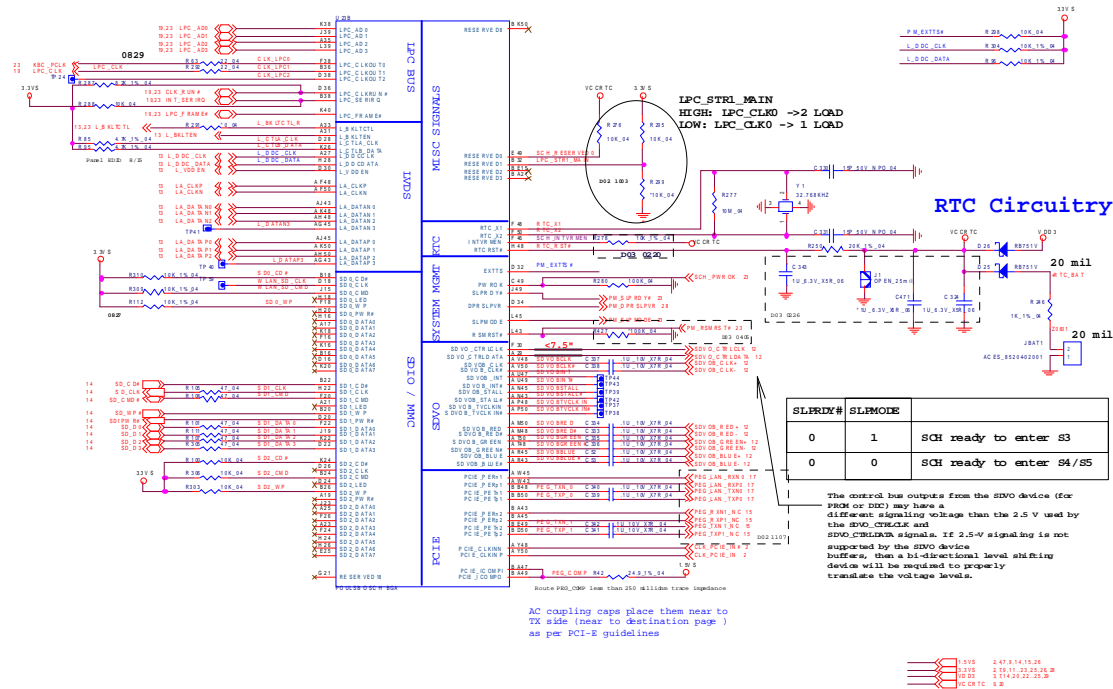


Poulsbo 1/6 Host

Sheet 5 of 31
Poulsbo 1/6 Host



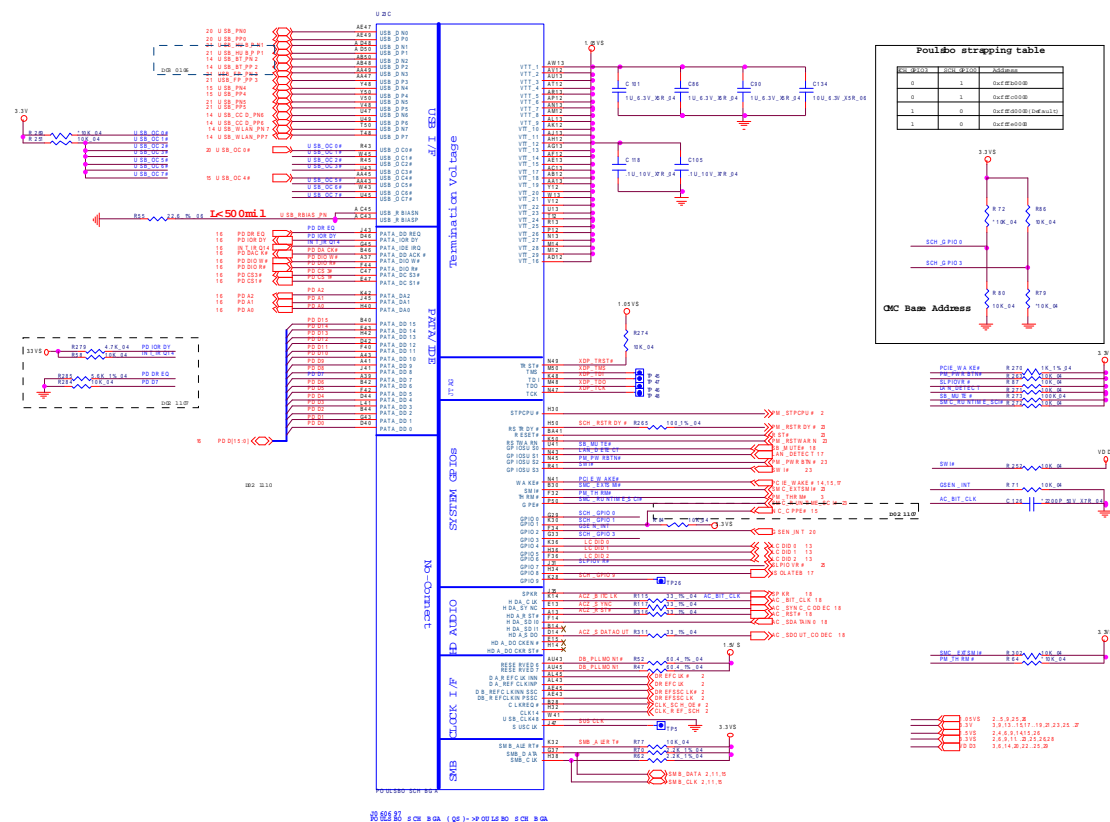
Poulsbo 2/6 VGA, LVDS, RTC



Sheet 6 of 31
Poulsbo 2/6
VGA, LVDS, RTC

B.Schematic Diagrams

Sheet 7 of 31
Poulsbo 3/6
USB, PATA/IDE

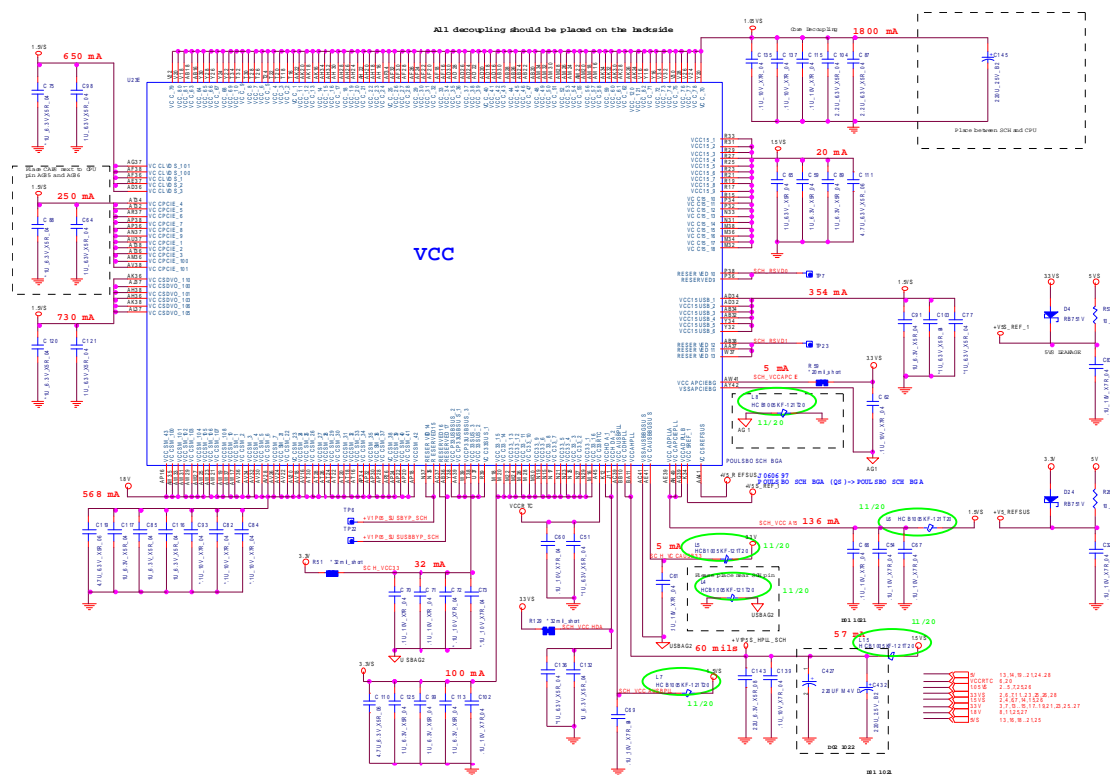


Poulsbo 4/6 DDR2

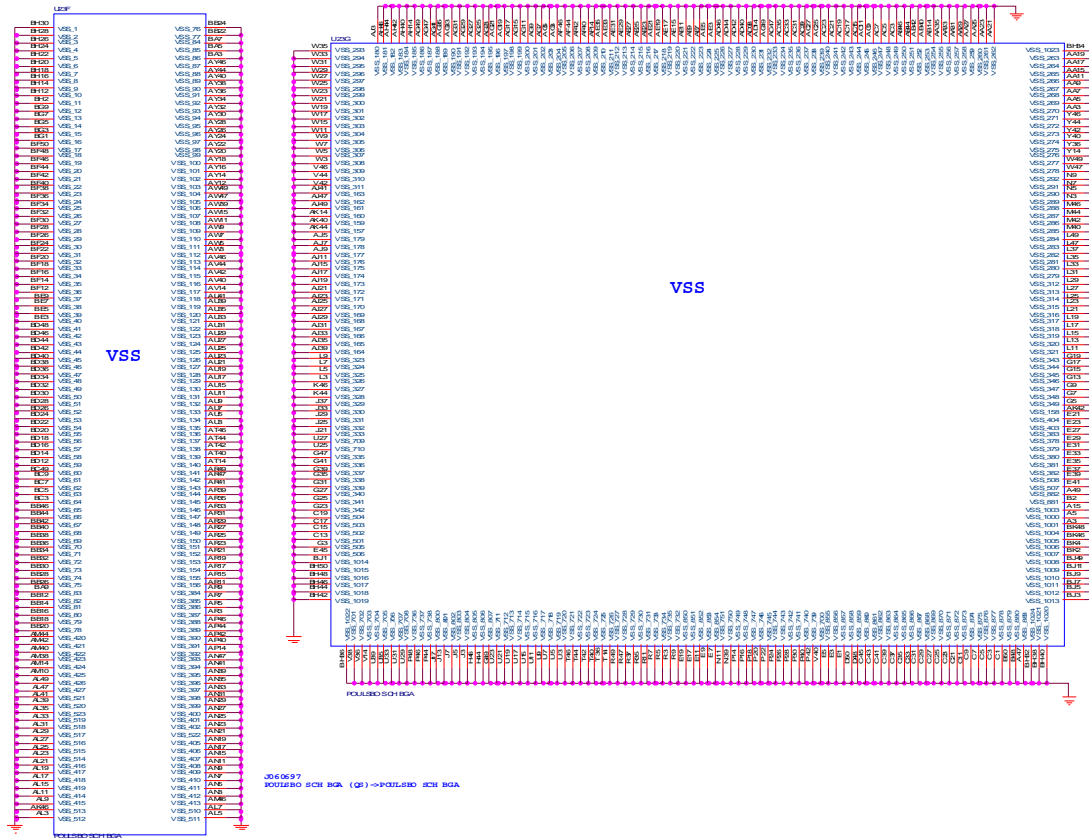


Poulsbo 5/6 Power

Sheet 9 of 31
 Poulsbo 5/6
 Power

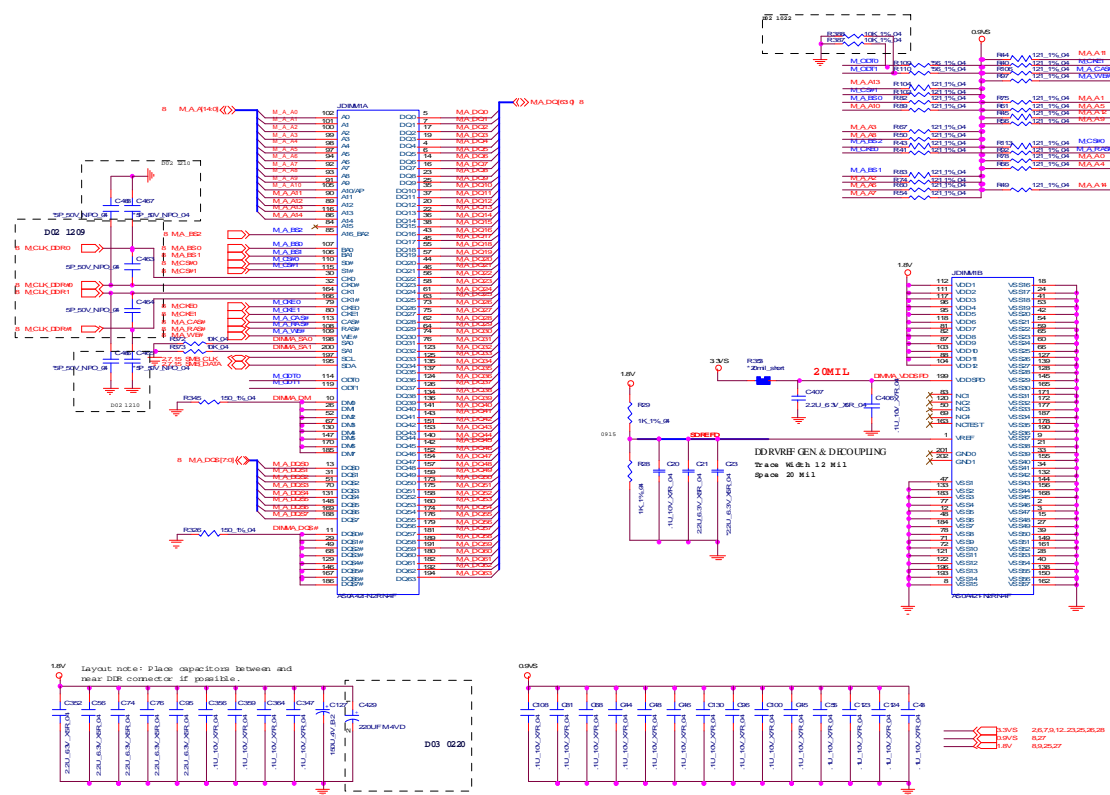


Poulsbo 6/6 VSS

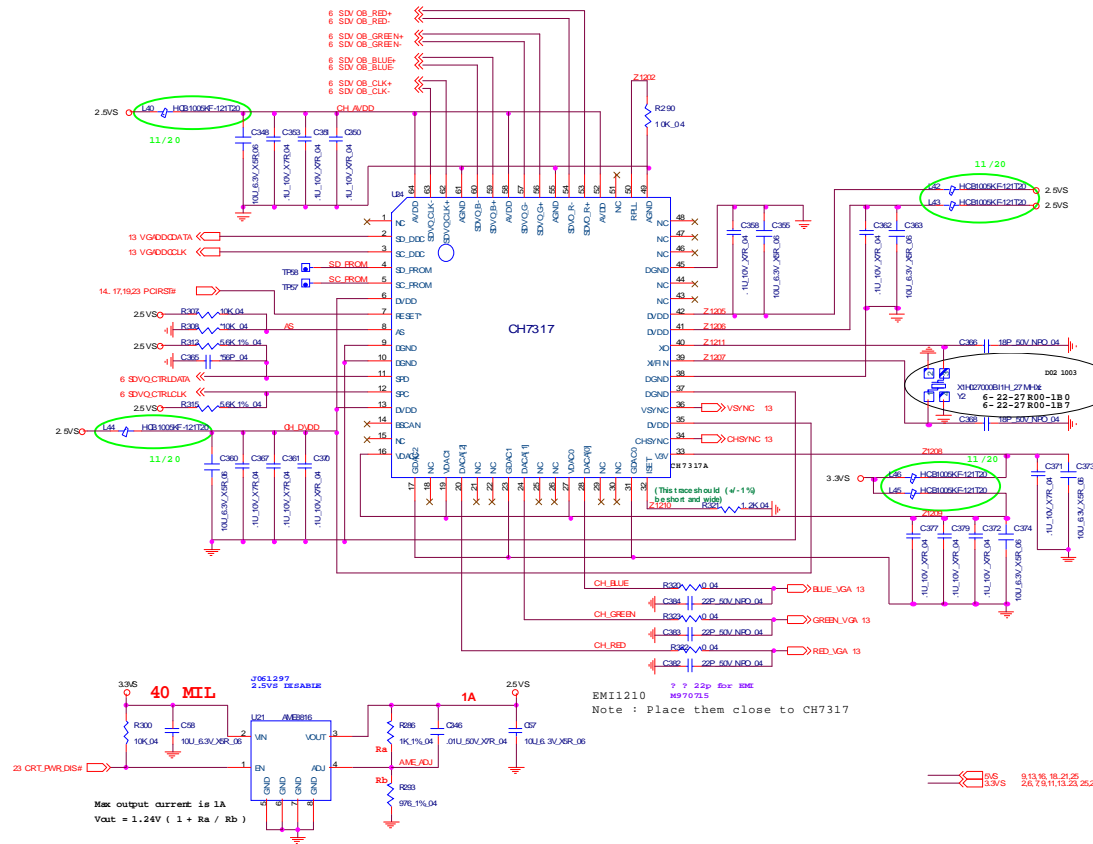


DDR2 SO-DIMM

Sheet 11 of 31
DDR2 SO-DIMM

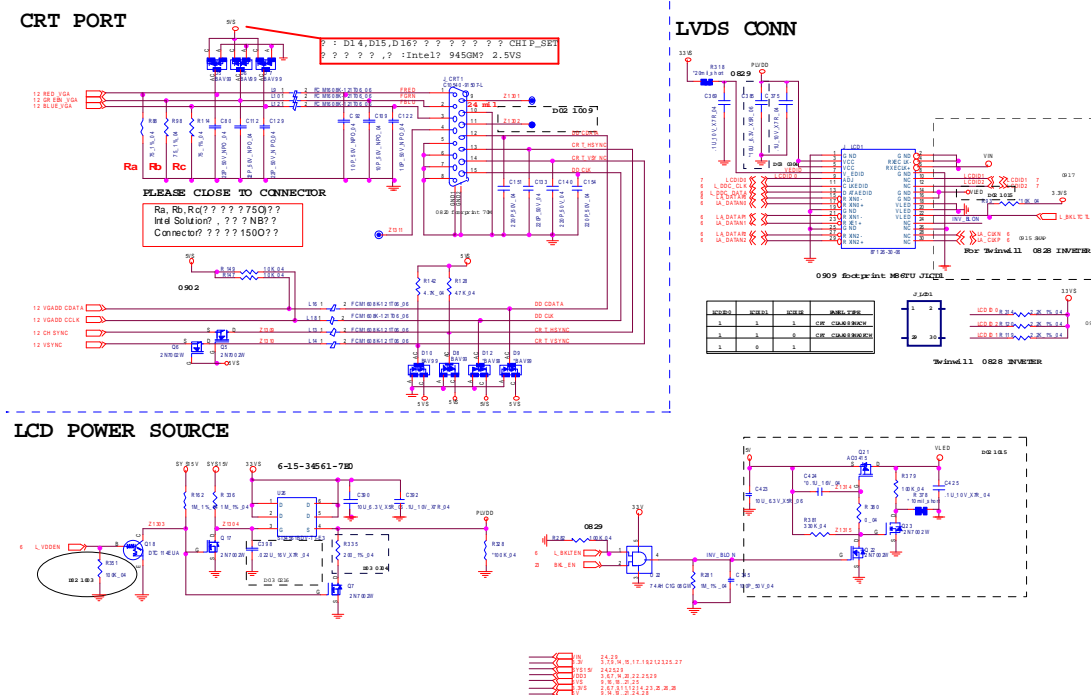


CH7317 SDVO to CRT



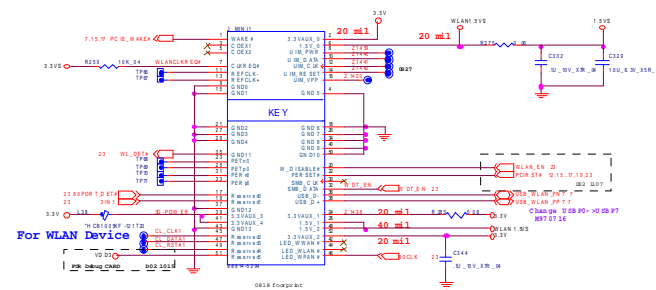
Sheet 12 of 31
CH7317 SDVO to
CRT

Sheet 13 of 31
LVDS Con, LCD
Power, CRT

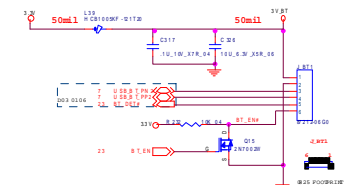


SDIO, Mini Card, B/T, CCDI

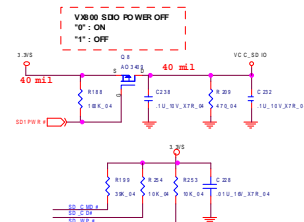
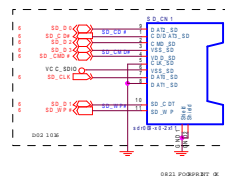
MINI CARD



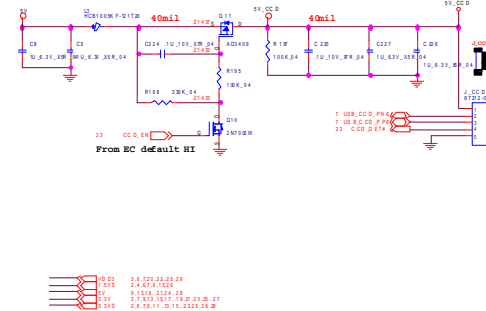
Bluetooth



SDIO CONN



CCD CON

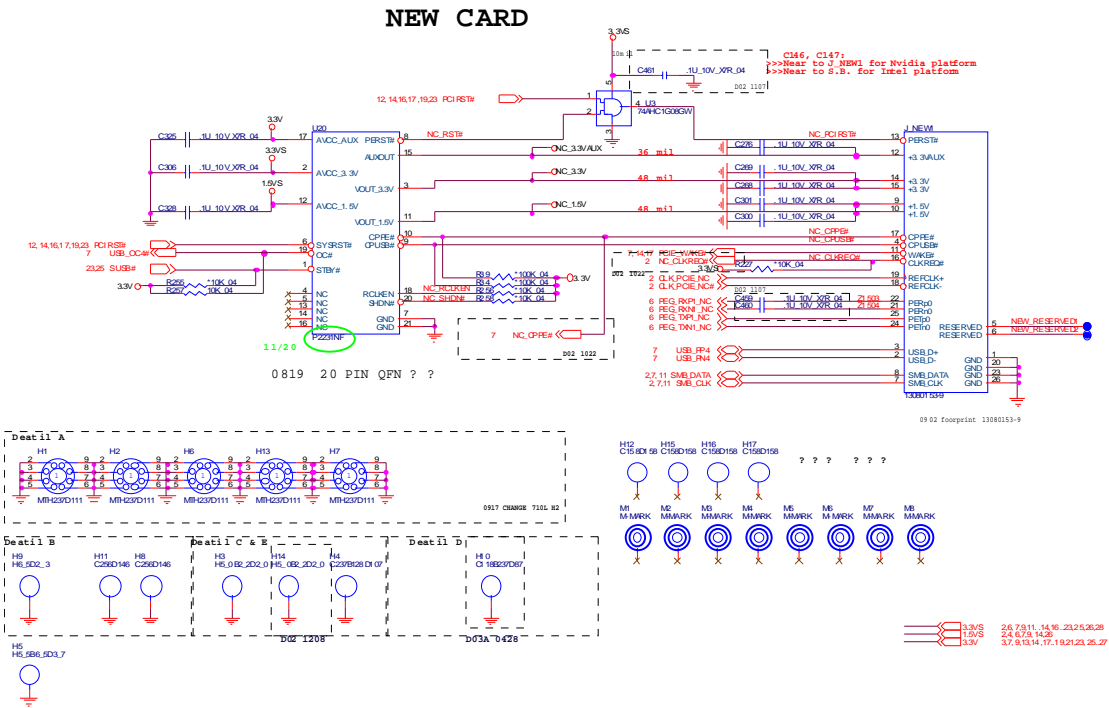


Sheet 14 of 31
SDIO, Mini Card,
B/T, CCD

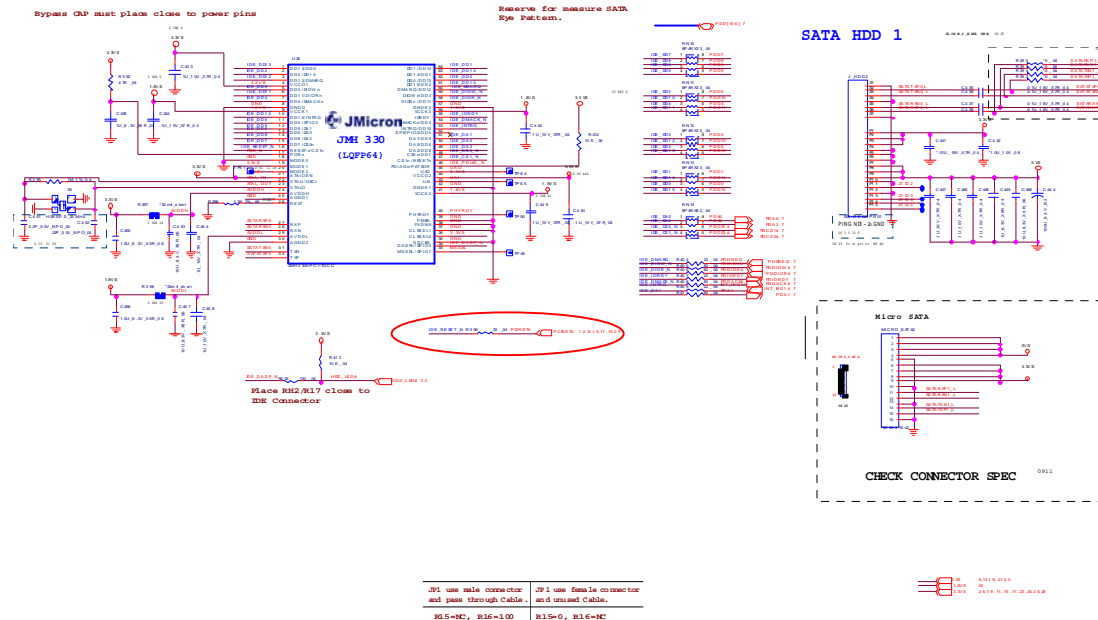
Schematic Diagrams

New Card Socket

Sheet 15 of 31
New Card Socket



JMH 330 SATA

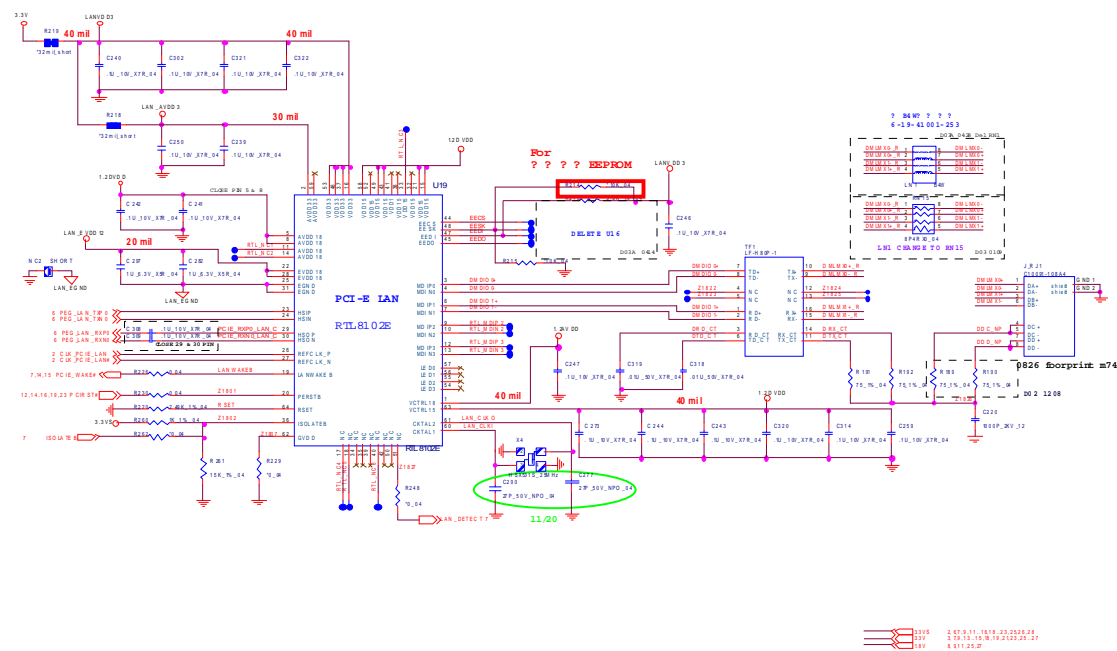


Sheet 16 of 31
JMH 330 SATA

Schematic Diagrams

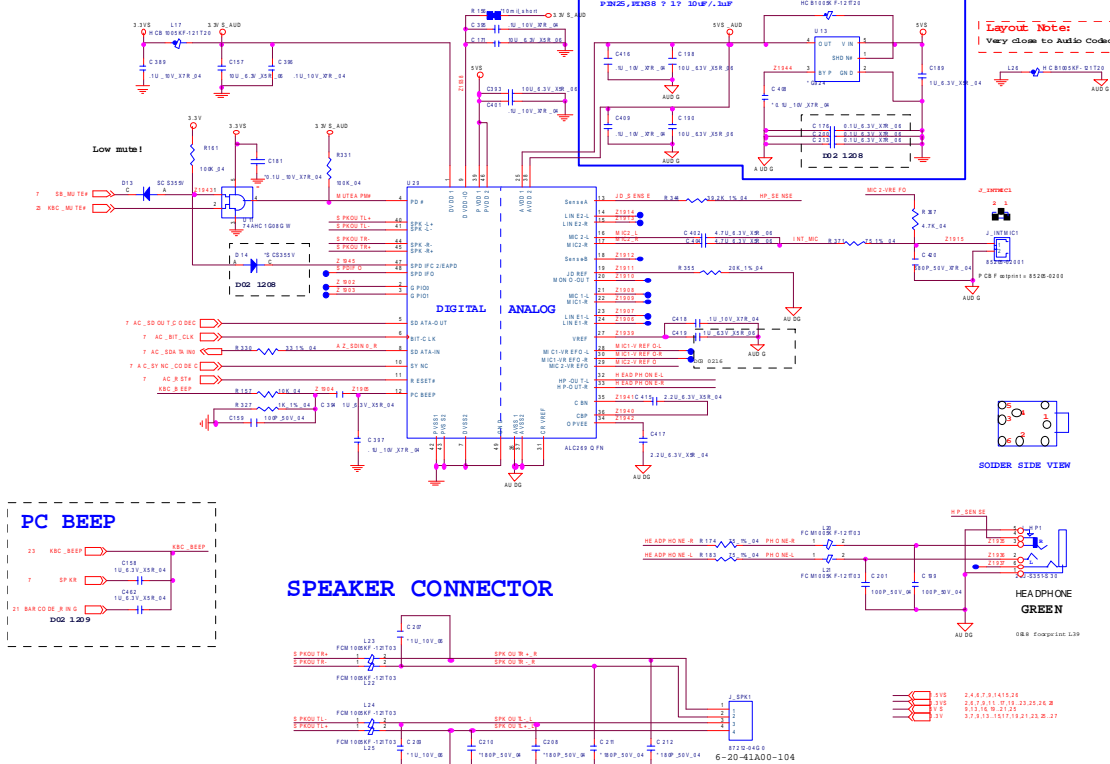
PCI-E LAN RTL8102E

Sheet 17 of 31
PCI-E LAN
RTL8102E



Audio Codec ALC269 QFN

CODEC ALC269

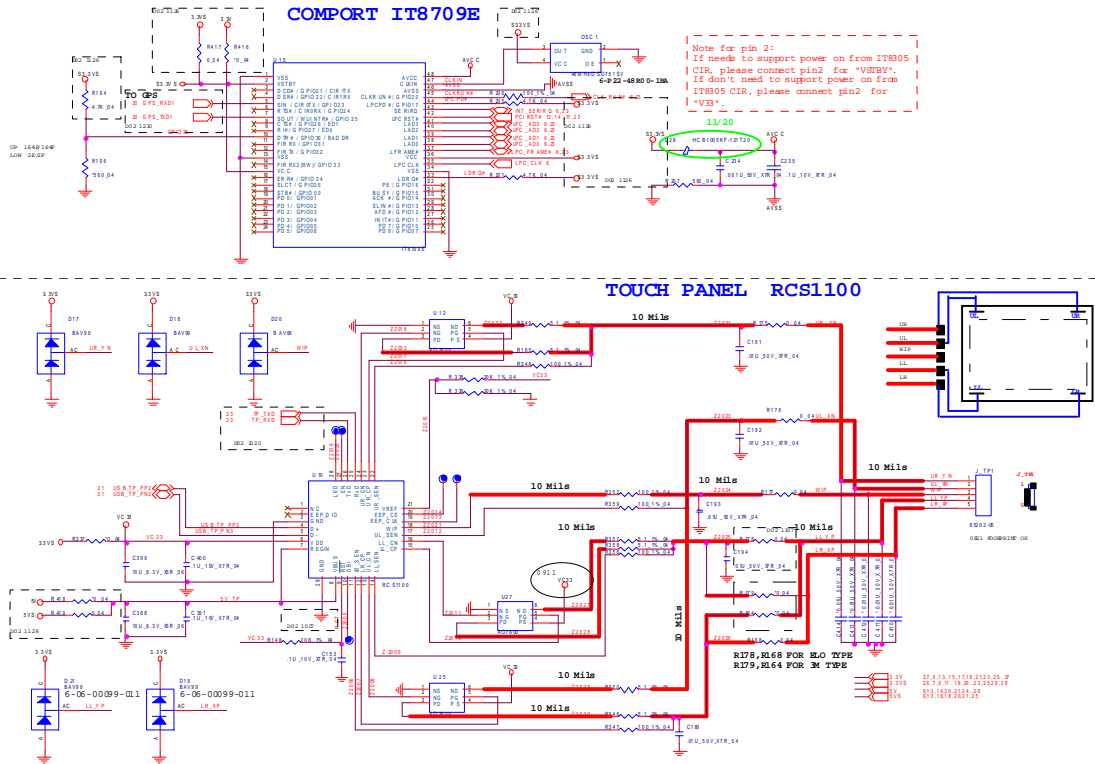


Sheet 18 of 31
Audio Codec
ALC269 QFN

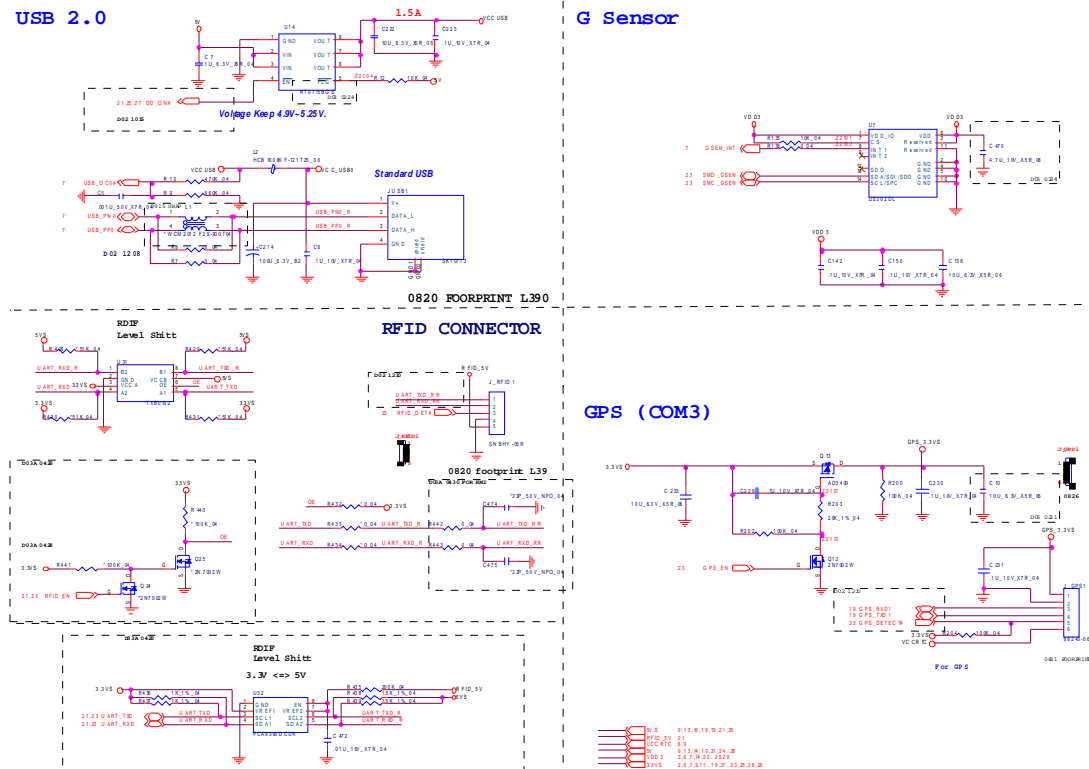
Schematic Diagrams

Touch Panel Control

Sheet 19 of 31
Touch Panel Control

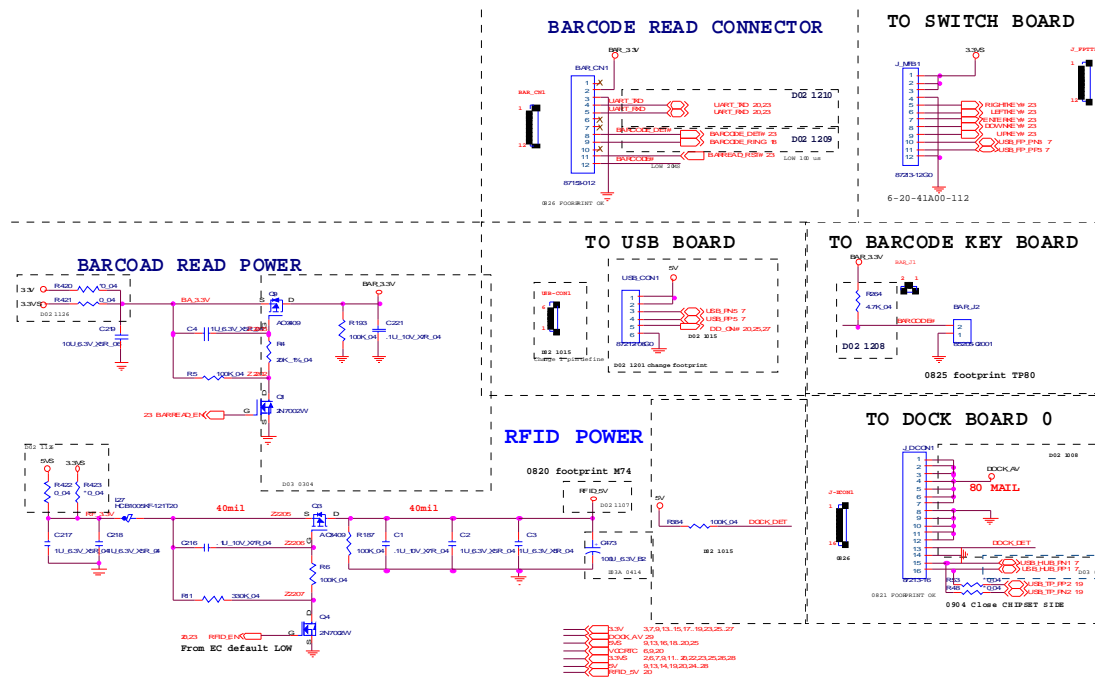


USB2.0, GSensor, GPS, RFID



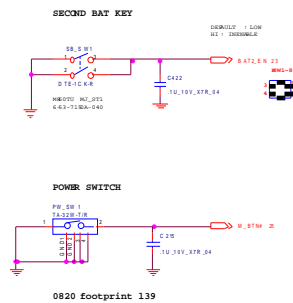
Sheet 20 of 31
USB2.0, GSensor,
GPS, RFID

Sheet 21 of 31
TO SW, Barcode
Conn

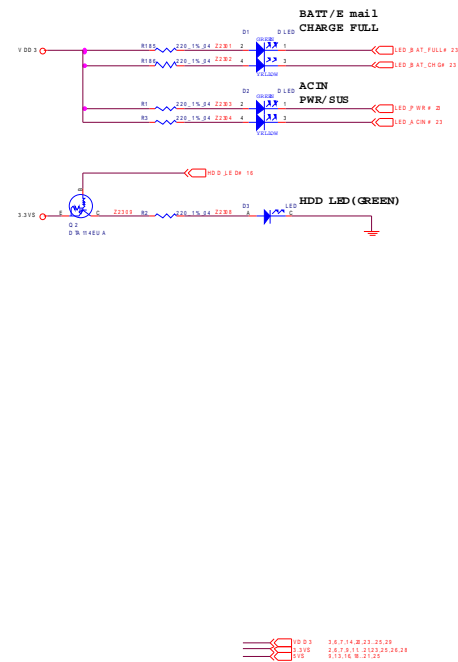


Hotkey Board

SECOND BATTERY ENABLED KEY



LED

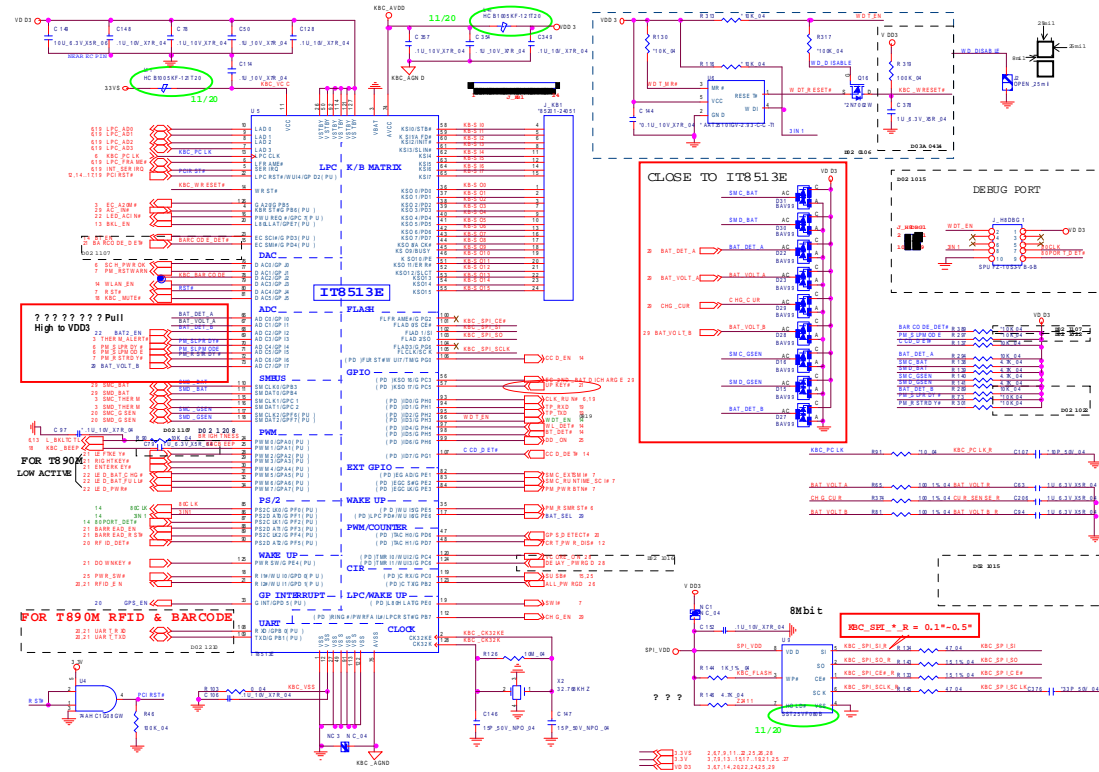


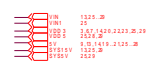
Sheet 22 of 31
Hotkey Board

Schematic Diagrams

KBC-ITE IT8513E & BIOS

Sheet 23 of 31
KBC-ITE IT8513E &
BIOS



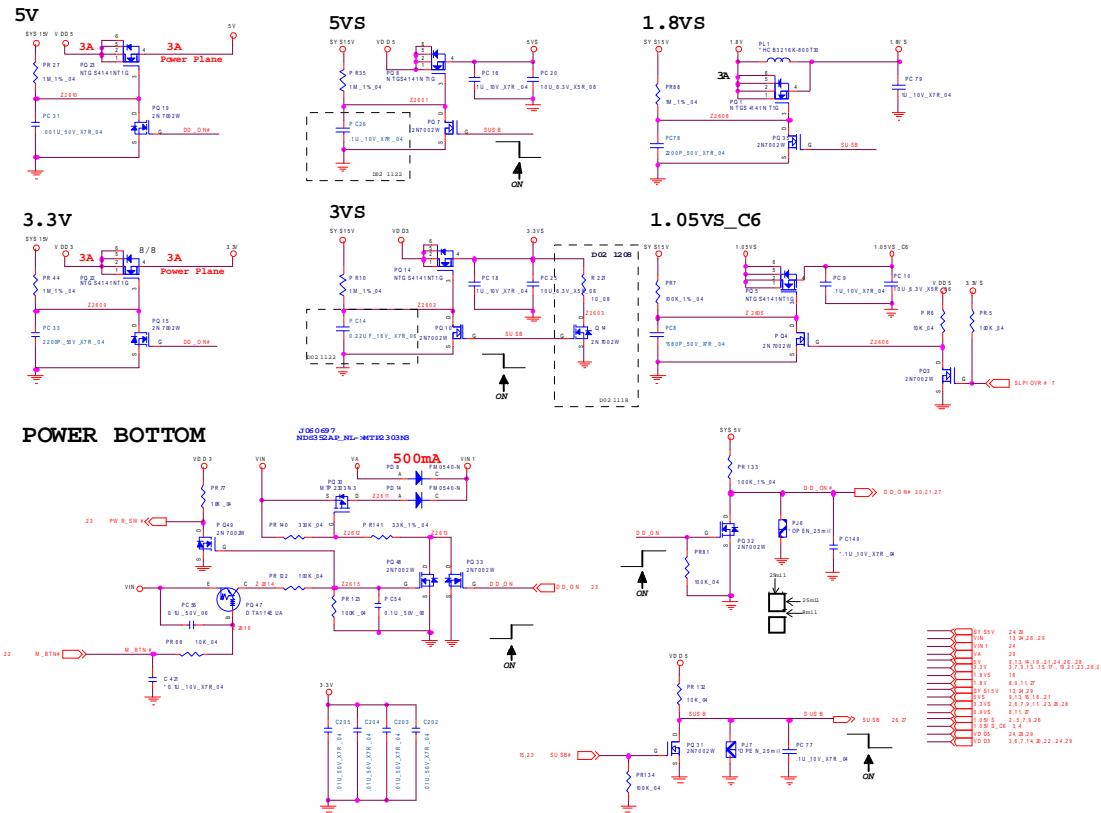


VDD5, VDD3 B - 25

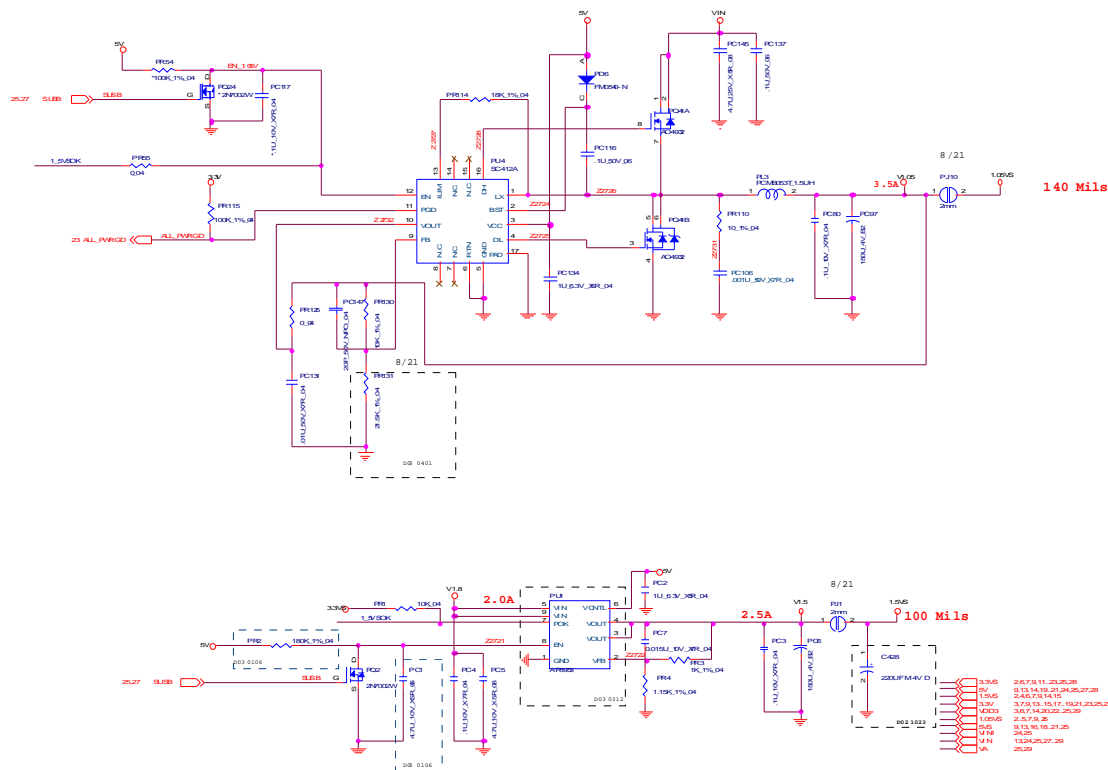
Schematic Diagrams

System VS Power

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System VS Power



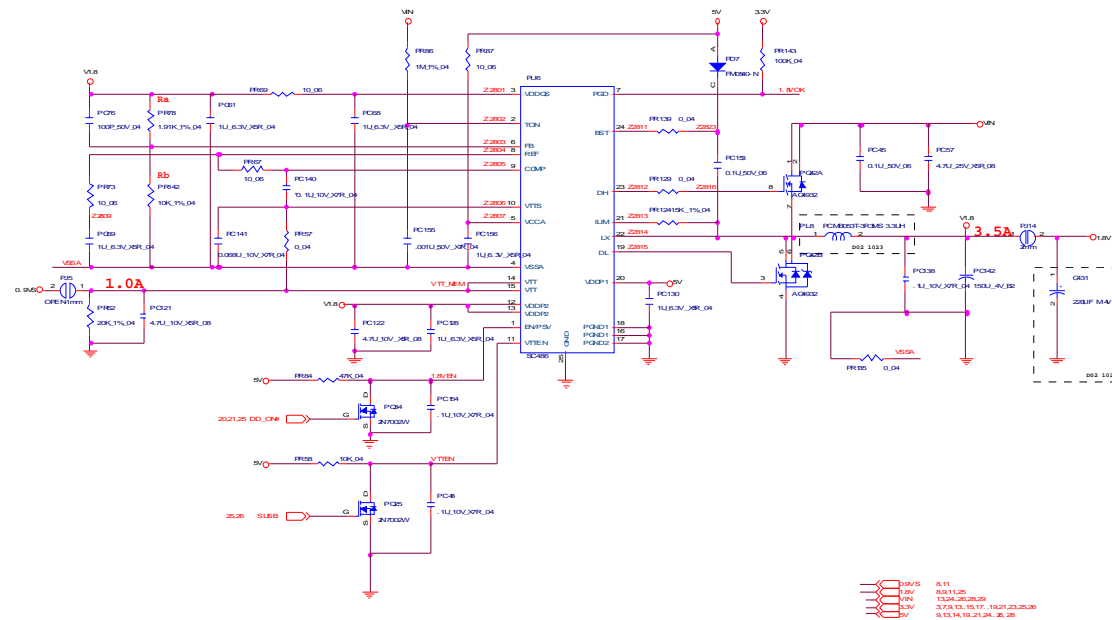
VCCNB, 1.5V, 1.05VS, M_BTN

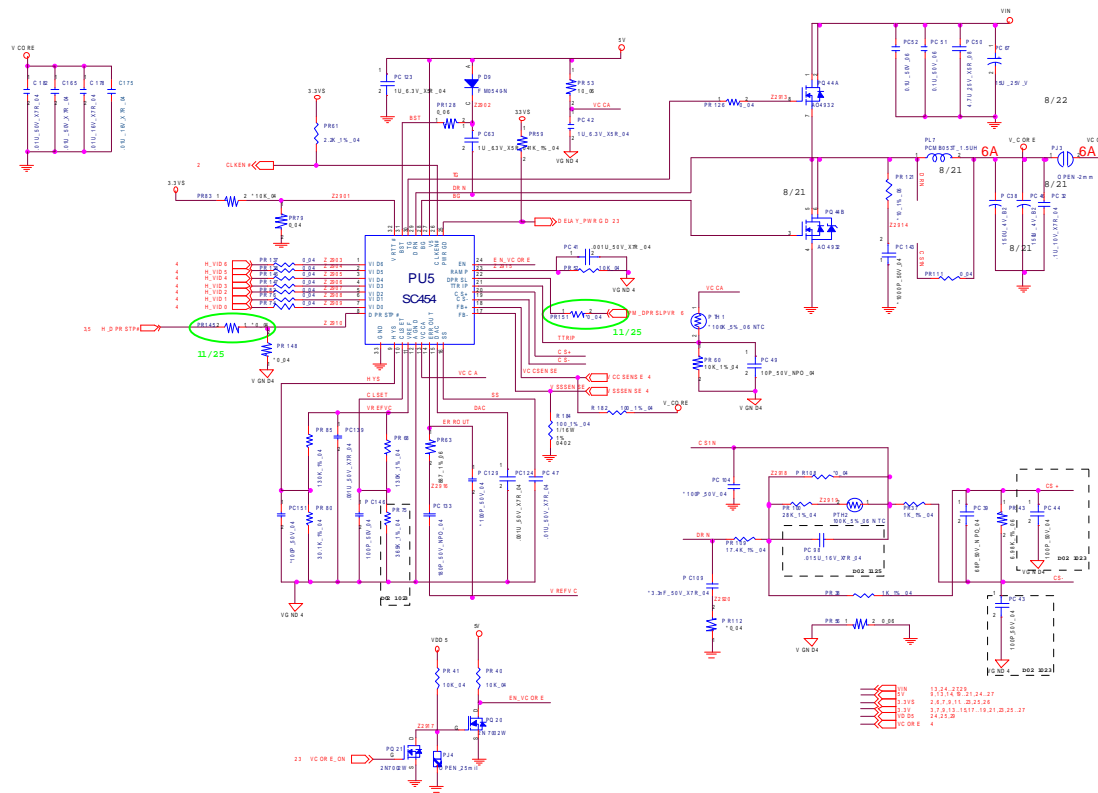


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VCCNB, 1.5V,
1.05VS, M_BTN

1.8V, 0.9VS

Sheet 27 of 31
1.8V, 0.9VS

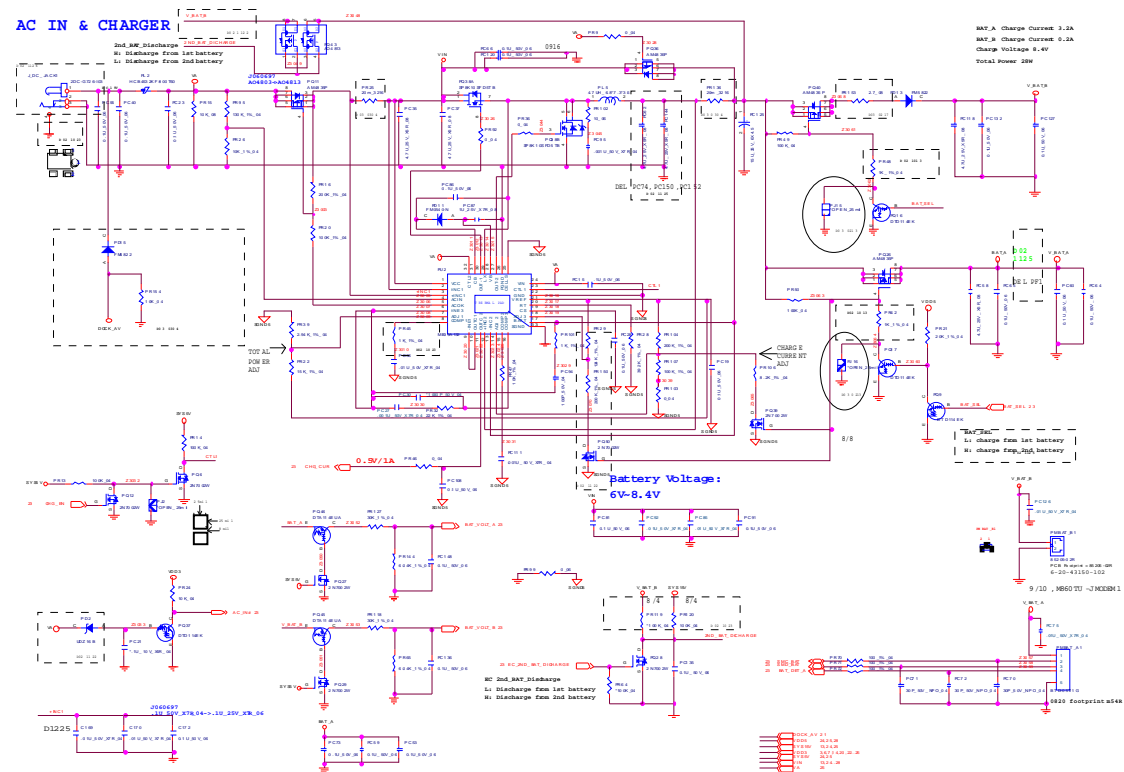




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VCORE

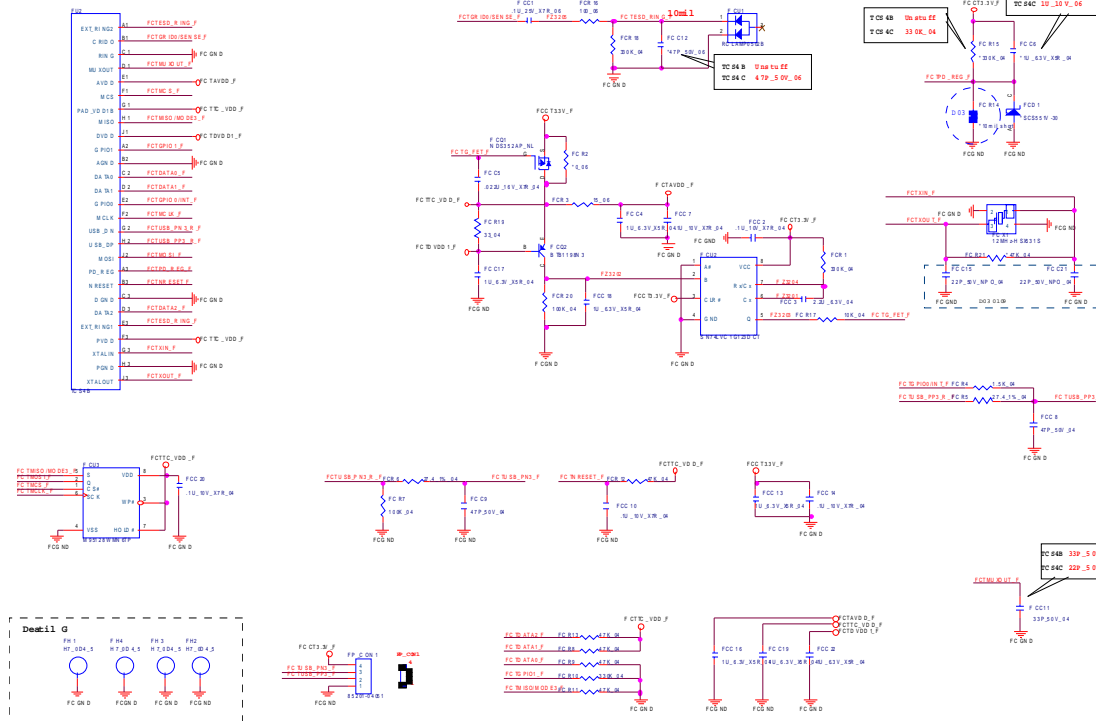
B. Schematic Diagrams

Sheet 29 of 31
AC-In, Charger



Fingerprint Board

FINGER BOARD FOR M74



Sheet 30 of 31
Fingerprint Board

Schematic Diagrams

USB Board

Sheet 31 of 31
USB Board

